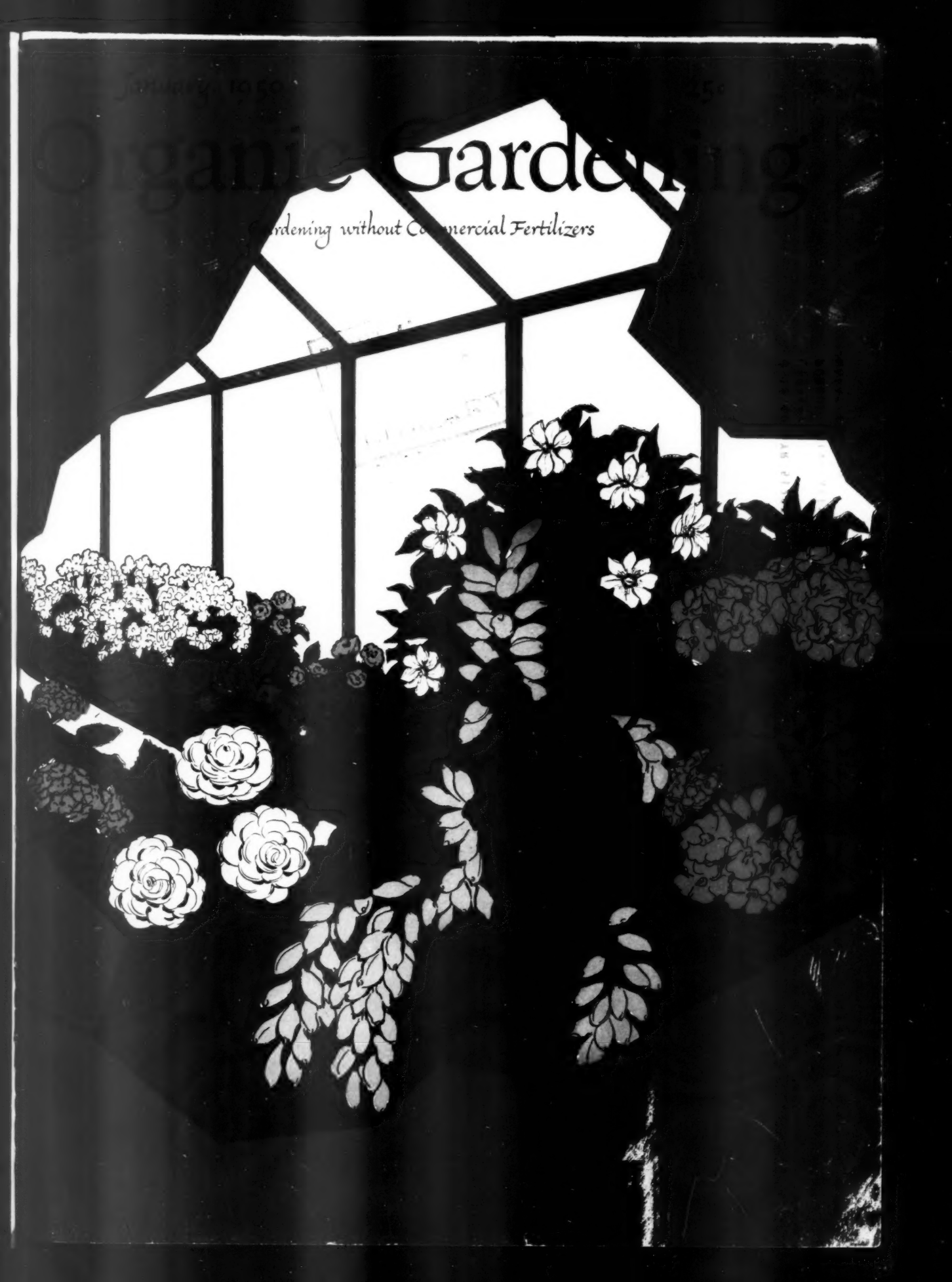

Organic Gardening
Gardening without Commercial Fertilizers

Build a Library of Gardening Books via the Organic Gardening 20% DISCOUNT PLAN

Here's how you benefit:

When you order the *Organic Gardening* Book of the Month, *plus at least one additional book* listed at the right, *you get a* 20% DISCOUNT *on your entire order.* This is your opportunity to build a helpful Organicultural library at unusually low cost. *Note*: Discount Plan orders for the January Book of the Month will be accepted only during January and February 1950. No C.O.D.'s on this special offer, which is open only to *Organic Gardening* subscribers.

The Book of the Month for January is

"The Earth's Green Carpet"

by Louise E. Howard

In this vividly written book the scramble for survival of all growing things is graphically set forth. Nature holds everything in place if Man permits her to, but when his depredations are successful the precious topsoil is lost and blows across the land or washes downstream. The author warns us that it is almost too late, and that if we do not change our methods Man can easily vanish from the face of the earth. Lady Howard is the widow of Sir Albert Howard, the founder of the Organic Farming movement. It is her theory that degenerative diseases are on the increase everywhere because of the prevalence of chemical fertilizing. 260 pp. **$3.00.**

Example of the Discount Plan:

If you purchase "The Earth's Green Carpet" and "The Healthy Hunzas", you take the 20% discount on $6.00 and pay only $4.80—a saving of $1.20! *The more books you buy when you buy the book of the month, the greater your cash saving.* And at the same time you are adding helpful, fascinating, authoritative books to your library, all written or endorsed by J. I. Rodale, editor of *Organic Gardening.*

Start NOW!

MAIL YOUR ORDER TO

BOOK OF THE MONTH DEPT.

Organic Gardening

EMMAUS, PENNSYLVANIA

Any of these ORGANIC GARDENING books may be used to complete your DISCOUNT PLAN:

THE HEALTHY HUNZAS

by J. I. Rodale

True story of a cancer-free people who return all residues to the soil. Gives full details. 263 pp., 20 photos. **$3.00.**

•

STONE MULCHING IN THE GARDEN

by J. I. Rodale

Eliminate cultivating and weeding and obtain better yields. A gardening innovation! 164 pp., 50 photos. **$3.00.**

•

THE PRUNING BOOK

by Gustave L. Wittrock

Deals with all kinds of shrubs and trees, tells not only *how* to prune, but *when.* 166 pp., diagrams, photos. **$3.00.**

•

FARMERS OF FORTY CENTURIES

by F. H. King

How compost farming and gardening have enabled the crowded Orient to feed itself and keep its lands fertile—a lesson for us all. 384 pp., 209 photos. **$5.00.**

•

MEMOIRS OF A ROSE MAN

by J. Horace McFarland

Horticultural ideas and personal reminiscences. 160 pp., many photos. **$3.00.**

•

TREES AND TOADSTOOLS

by M. C. Rayner, D.Sc.

Deals with their fundamental but little understood relationship. 122 pp., 18 full-page photographs. **$2.50.**

•

THE EARTH'S FACE & Human Destiny

by Dr. Ehrenfried Pfeiffer

A beautiful landscape is an index of a *living* soil. The author warns against agricultural practices which destroy the soil. 183 pp., 60 illus. **$2.75.**

•

HUMUS AND THE FARMER

by Friend Sykes

How 750 "worthless" acres were changed into rich farmland. 416 pp., 40 photos. **$4.50.**

GARDEN GUIDE

Here is a list of some of the things to be found in the new 1950 Short Guide of Kelsey Nursery Service. Copy free on request (except 25c west of Iowa). Will be ready in late February—but write NOW!

AZALEAS

70 Choice Varieties—mostly in small expensive sizes. Both evergreen and deciduous.
Gable's Hybrid Azaleas—a new race of real hardy kinds. Sensational colors never before in really hardy plants.

BLUEBERRIES

10 New Giant Blueberries—strong 4-year-olds (bearing age) now 1½ feet high, assorted named varieties, our selection, but all good, $10.00.

EVERGREENS

Kelsey Berrybush Yew—dark green evergreen rather dwarf, bushy. Covered with brilliant red berries in autumn. 24 inch B.&B. plant for $7.75.
Japanese Yew—upright "Capitata" form. By the hundred and by the thousand in small sizes, 8 to 12 inch twice transplanted, 25 for $22.00 ($80 per 100).

GROUND COVERS

Protect your banks from erosion with Vinca minor (heavy clumps $13.00 per 100). Pachysandra under trees where grass will not grow—$9.00 per 100. Many others to choose from.

DWARF FRUIT TREES

Dwarf Fruits—All varieties, from $2.60 up. They can be pruned, sprayed or picked without ladders. Groups should be selected for proper pollenization, and we offer a suggested minimum selection of six; 2 Apples (Wealthy and McIntosh), 2 Pears (Clapp Favorite and Bartlett), 1 Plum (German prune), 1 Peach (Elberta). All 6 are 2-year size, fruit possible next fall, for $23.00.

HARDY PERENNIALS

The best New Kinds (as well as the old). Arranged so you can quickly select and know what you are doing. Priced lower than most for top-quality plants. Aster Frikarti, Berbascum Pink Domino, Astilbe Fanal, Penstemon Fire Bird, Dianthus Old Spice, Christmas Rose, etc.

FLOWERING TREES

Franklinia, the only tree that blooms in fall! Also Japanese Flowering Cherries, Chinese Crabs, Magnolias, Tree Lilac, Tree Azalea, etc.
Rare Dogwood Varieties—not just the white-flowering, but pink as well. Also Double-flowering (like white roses); also a form with yellow berries that the birds leave on a little longer than ordinary red berries.

RHODODENDRONS

Rhododendrons for 35 cents!—Native species in the smallest grade (12-15 inches) that can be safely handled with the smallest earth-ball, from 35c to 75c each, depending on quantity ordered. Heavier grade too: 5 assorted 18 to 24 in. B.&B. $15.75.

YOUNG TREES & PLANTS

More than 900 different evergreen and deciduous trees and shrubs, plants, etc. in small seedling and transplant sizes by the hundred and thousand. As few as ten of a kind can be bought in many kinds. In a few years they are worth many times the few cents they cost now. Why not start your own nursery for future plantings?

FLOWERING VINES

A Wisteria that Really Blooms!—New Wisteria praecox blooms at half the age of other named sorts. Long blue clusters, vigorous grower. Also named Japanese forms, Chinese, etc. Better sorts of Clematis, Climbing Roses, Begonia, etc.

Write Today!

KELSEY NURSERY SERVICE

Money Back Guarantee (Established in 1878) Free Plant Insurance

DEPT. B2 . . 50 CHURCH STREET . . NEW YORK 7, N. Y.

NEW AND FASCINATING:

HUMUS and the FARMER

by FRIEND SYKES

TELLS HOW 750 "worthless" acres were changed into rich farm land by use of the organic method. Filled with graphic descriptions, illustrations, recommendations for making pastures, reclamation of waste or derelict lands, and increasing the water-holding capacity and productivity of the soil. The value of mixed farming and reforestation, the importance of the earthworm, and the mechanization of the compost method are all clearly explained.

Friend Sykes' account begins when what was regarded as one of the best herds in England proved, upon government inspection, to be 66% diseased—the result of deficiencies in the food plants. The herd was dispersed and the valuable farm land sold. Friend Sykes then purchased 750 acres of land on the Salisbury Plain which farmers round about considered practically worthless. He subsoiled it and fertilized with natural manures exclusivly. Pasture and crop plants were grown which were rich in minerals and other nutrient materials.

As a result, the cattle and horses were maintained in health and vigor that had been hitherto unknown, and the land is now eagerly visited by outstanding agriculturists as one of the most interesting farms in England.

416 pages. 40 photos. $4.50.

Order from ORGANIC GARDENING, Dept. 1-G, Emmaus, Penna.

More Important Than Ever:

Binders

for your valuable copies of Organic Gardening

All the news, features, editorials, to which you look forward every month can be preserved in these handy, durable, attractive leatherette binders—instantly ready for you to consult. A file of *Organic Gardening* is a permanent encyclopedia of organiculture, health, and inspiration.

New-size binders: $1.50.

Old-size binders: $1.25.

Binders for Organic Gardening Library Booklets: $1.25.

Each binder holds 12 copies—easily inserted and removed. All are stamped in gold on front and backbone. *Be sure to specify which binder you want!*

ORGANIC GARDENING
Dept. 1-G, Emmaus, Pa.

FOR GARDENING EFFICIENCY

THE AMERICAN COMPOSTER

Think of it! Garbage which has always been wasted may now be transformed into velvety black humus—a perpetual source of organic fertilizer for your garden.

Just like a savings account. You add garbage, weeds, dirt, waste matter little by little until you have accumulated a wonderful 100% organic compost—nothing better for your soil. Let The American Composter work for you to produce correctly aerated, finely textured, 100% organic compost.

Priced from $40.00

Custom Built Units to Specifications

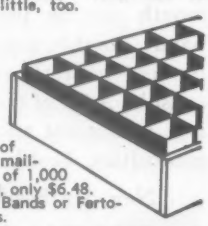
AMERICAN COMPOSTER CO.

Glen Ridge **New Jersey**

Buy Now so you'll have compost for Spring gardening.

300 WOOD VENEER PLANT BANDS $2.75

If you start your seeds, seedlings, cuttings, etc., in Plant Bands you can have better plants with sturdier root systems; earlier results; no wilt; no setback when transplanted outdoors. Millions used by professional growers. Made of wood, not paper. Size 2x2x2½. They cost so little, too.



300 PLANT BANDS $2.75

or 100 for $1.35 sent postpaid. (West of Ohio or South of Va., mailing 25c extra.) Crate of 1,000 by express not prepaid, only $6.48. Be sure to use Plant Bands or Ferto-Pots for better results.

FERTO-POTS

Sensational invention. Plant "eats" pot. FERTO-POTS are made of a rich cow manure mixture in automatic pot machines and kiln dried. Start seeds, bulbs, plants, cuttings, etc. in FERTO-POTS. Pot and all goes into the ground. No wilt, no setback in transplanting; better results; earlier crops; larger profits. Pots soften up in the moist soil and feed the plants. FERTO-POTS have taken the garden world by storm. Millions sold. Two sizes. No. 2½—100 for $2.75; 250—$5.00, and No. 3—100 for $3.25; 250—$5.75, by express, (not prepaid.) Use FERTO-POTS and enjoy a thrilling new garden experience.

CLARENCE B. FARGO

14 FARGO BLDG. **FRENCHTOWN, N. J.**

Organic Gardening

VOL. 16, NO. 1 JANUARY 1950

IN THIS ISSUE

Forum 1
Editorial—Cancer, Part IX ..... J. I. RODALE 12
Miscellany ..... J. I. RODALE 15
The New Organic Method—Some Interesting Facts ..... J. I. RODALE 18
Hedgerow Horticulture ..... JEANNE PONTIUS RINDGE 20
I Don't Believe That Green Matter Should Be Allowed to Wither Before It is Added to the Heap ..... LEONARD WICKENDEN 21
Men of Organic Farming—Goethe, the Father of an Organic Concept ..... DR. E. E. PFEIFFER 22
What Do Cutworms Eat—Should Cutworms be Regarded as Garden Pests? ..... A. W. FORBES 25
Greenhouse Culture—Short Period Artificial Illumination is Sufficient ..... DR. WILLIAM H. EYSTER 26
Growing Geraniums for Mass Effect ..... BETTY OTTER EVANS 27
Window Gardening, A Form of Gardening for All ..... WILLIAM H. EYSTER, PH.D. 29
Dr. John Clayton Gifford, Champion Organic Gardener in the Tropics ..... MARTHA PARKER 31
Weather Wisdom—Folk Ways of Predicting Weather and Gardening ..... JULIE BEDIER 33
Soil and Health Foundation 34
How to Grow Holly ..... EARL DILATUSH 35
January Flower Arrangement, Mrs. Ruth Conover and Mrs. J. I. Rodale 37
Corsages for Milady ..... GLAD REUSCH 38
Three Uses of Home-ground Flour ..... FLOYD W. MORRIS 40
Relation of Soil to Health ..... DR. W. G. MACDONALD 41
Sunflower and Sesame Seeds ..... DR. W. R. RAYMOND 43
Homemade Gardening Aids ..... JOHN KRILL 44
Hyacinth ..... JEAN MCCALEB 45
Garden Calendar for January ..... WILLIAM H. EYSTER, PH.D. 46
Italian Enclosed Method of Making Compost ..... J. I. RODALE 48
An Inexpensive Enclosed Pit 50
Experiment With Frazer Compost ..... J. I. RODALE 51
Make Compost With Earthworms ..... J. I. RODALE 51
Hints for the Flower Garden 52
Hints for the Vegetable Garden 52
Readers' Correspondence 60
Compost Starters In the New Organic Method 61

J. I. RODALE, Editor and Publisher

DR. WILLIAM H. EYSTER, *Managing Editor* KARL MANAHAN, *Art Director*
JAMES F. BAIRD, *Advertising Manager* VERNICE KEMMERER, *Assistant Advtg. Manager*
ROBERT RODALE, *Staff Photographer* ANN ANDREWS, *Flower Arrangement Editor*

Published monthly by ORGANIC GARDENING. Publication, Executive, Editorial, Subscription and Advertising Offices; 6th and Minor Streets, Emmaus, Pa. Subscription Rates, United States and Possessions, One Year $2.5 Two Years $5.00, Three Years $6.00. Unless otherwise directed all subscriptions begin with the current issue. In renewal subscriptions begin immediately after old subscription expires. When changing an address, give the old address as well as the new. Manuscripts should be accompanied by full return postage and a self-addressed envelope. Printed in United States of America. Copyright 1949 by ORGANIC GARDENING. Entered as second class matter January 2, 1943, at the Post Office at Emmaus, Pa.; under the Act of March 3, 1879.

THE COVER

The cover depicts an indoor garden which may be a scene from a conservatory or an apartment or house window. It is a form of gardening which often reaches its highest development in the windows of lowly homes. The flower pot filled with living soil represents the garden bed. It is a form of gardening open to all. The begonias, gardenias, and geraniums shown in the window garden have ornamental leaves and colorful flowers.

THE FORUM

ORGANICALLY GROWN VEGETABLES TEND TO BE MORE HARDY

Your readers may be interested in our experience with compost gardening at an altitude of 1700 feet above sea-level, in a narrow valley of southern Vermont. We are surrounded by relatively high mountains and have typical mountain weather, with the first frosts coming in late August or early September.

We have been fertilizing with home-made compost for several years. This autumn, which has been unusually warm, we have been living from our "fall garden" (planted between July 10 and October 15). Temperatures here have been down to 18°F. above zero on one occasion and below 24°F. on several occasions. Nevertheless, on November 14, we are still eating out of the garden, unprotected by glass, —Simpson lettuce, White Boston lettuce, Oakleaf lettuce, cos lettuce, escarolle, curly endive, three varieties of Chinese cabbage, turnips, rutabagas, Brussels sprouts, broccoli, red savoy and white cabbage, celery, celery root, parsley, parsley root, spinach and radishes. These garden products are coming direct from the soil. We have our carrots, beets and potatoes in a root cellar.

I am going into this detail because of the difference between our organically grown garden and the non-organic gardens of some of our neighbors. All through October, when their gardens were brown and sere, our garden was as green as it had been a month earlier.

Is there not some factor in organic agriculture which produces crops less liable to frost-damage than similar crops in near-by non-organic

KESTON ORGANIC SHREDDER*

Shreds all kinds of plant materials to be added to soil directly or make into quick compost. Shredder also serves as a mixer. WRITE FOR FREE LITERATURE ON MAKING YOUR OWN BALANCED FERTILIZER AND QUICK COMPOST. $110.00 Electric Motor or Briggs & Stratton Gasoline Engine, add $34.

B-D COMPOST STARTER**

Scientifically formulated in a Biochemical Research Laboratory. 1-ton unit for $2.00; 5-ton unit for $8.00; 10-ton unit for $14.50.

EARTHWORMS

Specially bred composting earthworms. $6.50 per 1000.

FULCRUM**

A well-made steel fulcrum for converting your spading fork into a non-digging fork. $3.50 each.

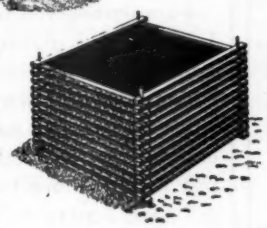
MILL*

Hand mill for making your own whole-grain flour. Capacity 60 pounds per hour. $10.00. Write for prices of power mills.

COMPOST BIN*

LEHIGH TYPE—Smoothly sanded oak and hard maple. Steel corner rods. 1-ton size $10.00; 2-ton size $15.00.

Limited Supply.



FERTO-POTS*

Made of organics which become compost. Per 100 - No. 2, $2.50; No. 2½, $2.75; No. 3, $3.25.

EARTHWORM Culture-casting Cabinet*

An electric cabinet designed so that the castings are deposited in a separate moist chamber. At last, pure earthworm castings. 1000-worm size for $15.00.

SOIL-BUILDERS**

With pH 6.7 and all nutrients. **Rose food,** approved by rose growers or **African violet** and **Gloxinia food** - 2 lbs. for $1.00.

ENZ-BAC**

All-purpose compost starter with the enzymes and composting organisms. 1-ton unit $2.00; 5-ton unit $8.00.

* F.O.B. factory in New Jersey

** Prepaid, add 10% west of Mississippi

Terms—Cash with order.

ORGANIC IMPLEMENTS & PRODUCTS CO. P. O. Box 100, HADDON HEIGHTS, NEW JERSEY

STRAWBERRIES *for* ***Every Need, Soil, Location, Climate***

ALL VARIETIES **Blueberries** BIG PROFIT MAKERS

Our 1950 Berry Book lists the varieties you need for highest Berry Production and profit. Each variety fully described with special information on areas to which best adapted. Nation-wide Shipments.

Best Varieties: **GRAPES, RASPBERRIES, BOYSENBERRIES BLACKBERRIES and ASPARAGUS**

FREE **44 Page Catalog and Planting Guide**

Write your name and address on a penny postcard and mail to us for your FREE copy!

RAYNER BROTHERS

SALISBURY 91, MARYLAND

ORGANIC GARDENS

are celebrating their

5th

ANNIVERSARY

EARTHWORMS Domesticated (Hybrid)

PERENNIALS, BULBS, ETC.

with

OUTSTANDING VALUES

If not on our mailing list, send for catalog.

ORGANIC GARDENS

Perry Hall, Fullerton, Md.

FRENCH HYBRID

LILACS

Outstanding varieties selected as best for home planting from the world-famous Highland Park collection in Rochester, N. Y. 18"-24" grade: $1.75 ea., 3 for $5. Write for catalog describing varieties.

HYBRID TEA

ROSES

Hardy, 2-year, Rochester-grown: 3 for $2.85, 10 for $8.50.

Flower City INC. NURSERY

WRITE for CATALOG TODAY!

BOX 43 EAST Rochester, N. Y.

gardens? If this observation is sound, here is an additional argument in favor of organic agriculture.

Best wishes for the excellent work which *Organic Gardening* is doing.

Scott Nearing,
Forest Farm, Jamaica, Vt.

—o—

SHREDDING PLANT MATERIALS AND COMPOST MAKING

I am writing you this letter which I feel is long overdue. I have obtained so much information from your magazine I want to congratulate you on a fine publication. Anyone that has any feeling for the soil just cannot afford to be without it.

I have a story to tell you, so I'll just begin from the start. I am a lover of the soil, and I preach organic farming from morning till night. Eight years ago Mrs. Fletcher and I bought a little bungalow and three acres of land. The land is covered with a blanket of dark loam 12 to 18 inches deep. I have a small orchard consisting of five different kinds of apples. The first year I started a so-called compost pile. It took over a year to really mellow, but still it wasn't what it should have been. I kept making compost this way until I received your magazine and then I really started to learn something.

My garden this year was enough to sell anyone on organic gardening. The past summer was the driest in the history of New England. My garden was the best I ever had.

I purchased an old fashioned hay chopper and everything that goes into the compost pit I chop not over 1 inch long. I raise a beef every year to eat so I have plenty of green manure. I experimented this year by making compost both in bins and in a pit. The results were truly amazing. The last batch I made really contained some items that are on the hard-to-rot list. Sunflower stalks and leaves and corn stalks were two major items. This compost stayed in the pit four weeks and when I forked it out it was coal black. I was mighty proud. I use ventilators made of ½ inch mesh cellar window wire. I form this wire to make a tube about six inches across and use two in the pit. I do not let my material accumulate, but chop it up and add it to the pit as it is gathered. I use rain water because our city water is treated.

I have had no trouble whatever with my pit heating. I lowered a thermometer into one pile after five weeks and still had 100°. I keep one bin just for leaves and use these in very thin layers.

I raise a large bin of earthworms in my cellar and I add these to my compost bins and directly to the garden.

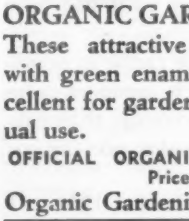
I do not believe in deep plowing so I purchased a small garden tractor this year and it worked fine.

I have about eight tons of compost ready for next spring and hope to double my output next year. At the present time we have ⅔ of an acre in gardens and add some every year.

I am firmly convinced, sir, that a pit is the best method to use and that it is best to chop everything that goes into it.

All of our seeds this year were planted on four inches of compost and the results were truly amazing. The compost was put in the furrows. I think next spring I'll have enough to sheet compost the gardens.

We raised field corn fourteen feet high, sunflowers twelve feet high and tomatoes on vines eight feet in diameter. All this during the driest summer in history, and I do not have a watering system. You can readily see



ORGANIC GARDENING BUTTONS may be obtained through the ORGANIC GARDENING office. These attractive bronze buttons with green enamel border are excellent for garden clubs or individual use.

OFFICIAL ORGANICULTURE EMBLEM

Price 50c

Organic Gardening, Emmaus, Pa.

why I believe in organic gardening. Sir, if you have any comments to make on my methods or results, I certainly would like to hear from you. Our goal will not be attained until we can look up to heaven and say, "Dear Lord, the earth is in the same condition as when you made it."

Albert T. Fletcher,
Haverhill, Mass.

—o—

EARTHWORMS KILLED BY AMMONIUM SULPHATE

I can testify to my sorrow that ammonium sulphate killed all the worms in my four months old compost pile. A friend came along at 3 P.M. and left fish and crabs. I placed them in compost and sprinkled it with ACTIVO (and ammonium sulphate to promote reaction). The next morning worms were out all over the ground, dead and dying. Not one was saved. The pile was raked over twice to determine if any worms were left. None were. Now, three weeks later, not one new worm has been found, proving that capsules were also killed, unless some worms do show up in the next ten days.

E. A. Morrow
215 W. Garden Street
Pensacola, Florida

—o—

THE NEW METHOD OF ORGANICULTURE

This past season I used on my garden a method you recommend. I simply spread manure, leaves, vegetable waste, and wood ashes on top of the soil and worked it in the top few inches. My garden this year was the best ever.

Charles Mascaro,
Lemon Street, Hatboro, Pa.

—o—

ORGANICALLY GROWN PLANTS DO NOT "RUN OUT"

I have just finished reading the November *Organic Gardening*, and

How to Get More Pleasure from your Home Garden

Have you ever experienced the satisfaction of picking your own fresh fruits throughout the season? If not, there's a real thrill in store for you. Your garden can become an added pleasure with such things as these:

DWARF FRUIT TREES

These miniature trees give loads of full size fruit, yet take up a minimum of space. Ideal for that bare corner, or where a decorative and productive tree is wanted. Often bear fruit second year, and a bushel per tree is not unusual. Apples and Pears in several varieties; fully described in our new catalog.

SMALL FRUITS

Easy-to-grow and care for, so satisfying to have your own. The best varieties of Strawberries, Raspberries, Blackberries, Blueberries, Currants, and Grapes. We have specialized in fruit culture for past 75 years, and our reputation backs up everything we offer.

SHADE and NUT TREES, ORNAMENTALS

You will find many fine varieties of these, too, in our new catalog—fully described and illustrated.

WRITE FOR YOUR COPY OF OUR 1950 CATALOG TODAY!

J. E. MILLER NURSERIES

548 West Lake — Canandaigua, New York

New Ideas for your garden

Dwarf Fruit Trees
Quick-Crop Fruits
Ornamental Fruits
Complete Home Orchard
The Home Vineyard
Everbearing Strawberries
Everbearing Raspberries
Blueberries with fruit buds
Fast-growing Shade Trees
Magnolias with flower buds
New Patented Roses
New Garden Aristocrats
Shrubs to bloom this year
Evergreens
Many other trees, plants

STERN'S 1950 SPRING CATALOG

Introducing new Blue Ribbon fruits, berries and ornamentals

Full of new ideas, plans, helpful information—most complete nursery catalog. Contains many new and unusual trees and shrubs.

FACTS to help you plan your garden

Ideal catalog for beginners because it truthfully tells what to plant—and what *not* to plant. Tells how to select easy-to-grow fruits and flowers. Lists hardy plants that survive severe winters. So complete, expert gardeners say—"outstanding catalog for 1950." (NOT A SEED CATALOG)

Hurry! Limited Edition! Don't miss it!

STERN'S NURSERIES, Dept. O, Geneva, N. Y.
Please send me your 1950 garden catalog at once, without obligation. (10¢ west of Miss. river)

NAME .....
ADDRESS .....
CITY ..... STATE .....

K & K Shredder Juicer

Now AVAILABLE

Immediate delivery, write for details on accepted leadership in home juicers.

KNUTH ENGR. CO., Dept. G, 2617 N. St. Louis, Chicago, Ill.

New Fire Chief Petunia

Potted Plants of FIRE CHIEF

Ready in May

The first and only really red Petunia ever produced. So striking that the judges of the All America entries awarded it a Gold Medal and the highest score ever given.

Fire Chief is a Dwarf Bedding Petunia very uniform in height. The plants are literally covered with rich glowing red blooms which start to appear early and continue throughout the summer.

In addition to the seed, we offer bushy, well-rooted plants grown in individual pots by our greenhouse experts and shipped to you in cartons especially designed for this purpose.

Potted Plants Ready in May

1 Doz. — $2.50 pp.

PLEASE NOTE

We cannot accept orders for less than a dozen. We do not ship west of Indiana or south of Virginia.

See our new catalog for a complete list of flower and vegetable seeds and plants.

JOSEPH HARRIS CO., INC.
50 Moreton Farm Rochester 11, N. Y.

1950 CATALOG *now ready*

HARRIS SEEDS

NEW SUB-ZERO English Ivy

Special Strain Stands 20° Below ZERO

At last an English Ivy strain has been developed to stand 20° below zero without protection. Have year 'round beauty with this hardiest of all evergreen Ivies. Enjoy its green leaves all winter on house-walls, chimneys, fences, gates, trellises, garden-walls. Excellent ground cover. Strong potted plants only $1.00 each, postpaid. Twelve plants for $10.00 (Twelve plants will cover average house) 25 plants for $18.75. Limited supply. Order today.

THORNDALE FARM DEPT. A-4, WOODSTOCK, ILL.

of course I read your interesting article, under "I Don't Believe That" Strawberry "run out." When I was on the farm with father we raised our own strawberry plants, but father always said not to try to raise too many new plants while raising a full crop of berries. When we wanted a good crop of berries we kept the runners clipped off and when we wanted new plants we pinched off many of the blossoms. Our strawberry plants never "ran out." We also had heard that potatoes "ran out," but ours never did, rather they kept improving year after year. Those who said their potatoes "ran out" planted the small round potatoes as seed, but we always used nice large potatoes and cut them with two to three eyes.

My brother and I farmed a few years in the northern part of this state, Minnesota. We used seed potatoes from the best hills and where there were no small ones. In three years we had the finest patch of potatoes in the whole county, 12 and 14 nice large potatoes to each hill, no small ones. When we dug one row, people said we had 3 rows of potatoes in that one row instead of one, but when we dug up hills they pointed out that they themselves changed their minds as there were the 12 to 14 nice large potatoes in each hill. Of course, this was on new ground, never before farmed. It was a black, sandy loam, well drained. While I am writing, I shall have to tell you about my tomatoes this year. I took out a peony plant and set in a tomato plant I had left from my garden. This plant had 60 tomatoes on it, and all but four got ripe. They would have gotten ripe, only I took the tomato out to set a rose bush in the place. I had the nicest patch of tomatoes I have seen in this neighborhood with one exception. An old man who can hardly walk had better tomatoes than I had.

Charles Faber,

3243 Girard Ave., N.,

Minneapolis 12, Minn.

VEGETABLES IN THE GARDEN OF EDEN

A little over two years ago a magazine salesgirl came to our house, and in order to get rid of her quick, I told her to put me down for a short subscription to *Organic Gardening*. When I received the first copy, I knew then that I had found something that I had been looking for, for a long time. I'm afraid that short subscription will not end as long as I have enough money to keep it coming. That was the grandest guess I ever made.

No doubt you are doing the most good of any man-made organization in the world today. God knows that if this good work can be kept up it will erase practically all chances to have the diseases that are rampaging this world today, and that it will be possible to have a "Garden of Eden" here also. And, of course, with commercial fertilizer gradually killing the bacteria and earthworms etc., we may be compelled to use poisonous sprays. And if the atomic bomb doesn't get civilization, the other surely will.

Well, I could write on and on about that and also about the wonderful garden I had this year. I had beans, peas, onions, turnips, cabbage, parsnips, potatoes, tomatoes, celery, broccoli, sweet potatoes, peanuts, lettuce, rhubarb, artichoke, watermelons, cucumbers, and a few other things. But I can honestly say and prove by my family and neighbors that there is no comparison to what I raised in former years.

I am sending you a picture of a

If you are interested in J. I. Rodale's articles on cancer, read ***"The Healthy Hunzas".*** This informative book describes a race of cancer-free people in the Northwestern section of India. Your eyes will be opened when you learn the important part farming plays in the health and prosperity of the world. Written by J. I. Rodale, this clothbound book sells for **$3.00** postpaid. ***Send for your copy today.***

ORGANIC GARDENING
Dept. 1-G, Emmaus, Penna.

STUMPP & WALTER

1950 CATALOGUE NOW READY

112 pages, 24 in color, featuring the newest, high quality plants, seeds, bulbs and garden supplies . . . Planting information guides both beginner and experienced gardener.

Send 25c in cash or stamps for your copy. This amount will be allowed on any order of $3 or more.

Stumpp & Walter Co

132-138 CHURCH ST., DEPT. OG NEW YORK 8

SENSATIONAL OFFER!

1000 WORLD FAMOUS RAINBOW MIX GLADIOLUS BULBLETS!

$1.49 POST PAID

PRIZE WINNERS make this the outstanding "buy" to Gardening America, at a price you never dreamed possible. All have a full life ahead, to give you flowers for years to come. All cash orders sent postpaid. We start shipping about March 15th.

OUR SUPPLY IS LIMITED!

Extra! Prompt orders will receive the latest copy of "PASTIME GARDENING"

PASTIME GARDENS,

5950 Shuman, Garden City, Mich.

STURDY HARDY PERENNIALS

Strong, well-rooted plants, packed to carry safely coast to coast, and then live, thrive and flower. Hundreds of kinds, unusual bulbs and hardy plants, in our New Illustrated Catalog. Ask for your copy.

REX. D. PEARCE

Moorestown Dept. D New Jersey

FLOWERING SHRUBS

Lovely Altheas, Hydrangeas, Spirea, Forsythia, Lilacs and many others shown in full color in our BIG, FREE 1950 CATALOG. Write today.

FREE CATALOG Satisfaction Guaranteed.

KELLY BROS. NURSERIES, INC.

58 Cherry Street Dansville, New York

DWARF FRUIT TREES

Early Bearing • Big Yield • Large Fruit

Bear luscious, FULL SIZE Apples, Pears, Peaches, etc. Easier to care and harvest, saves space, decorative. Full line of selected Fruit and Shade Trees, Evergreens, Berries, Plants, Shrubs, Flowers. At save-money prices. Quality guaranteed; since 1889. Write for FREE Catalog TODAY!

Get FREE CATALOG

WHITTEN NURSERIES, Box 231, Bridgman, Mich.

Roses

1950 AARS WINNERS

NEW COLORFUL FREE CATALOG

TY-TEX SOUTH'S LARGEST GROWERS OF PATENTED ROSES

DEPT. O-1 • BOX 532 • TYLER, TEXAS

sweet potato I dug two weeks ago. I dug a ditch one foot deep, filled it with compost and made a ridge over that, and from 14 hills I got 2¼ bushel. I wish you could have seen them.

This soil here is a tight red clay, so that you can make adobe out of it. But you ought to see the most of this tract now—100 x 125. Earthworms by the thousands. I even hate to dig in the soil because I am afraid I will kill one. I had an abundance of everything I planted with no worms on the corn.

Tom Anderson,
Box 880, Shasta County,
Project City, Calif.

—o—

IRIS FLOURISHES IN COMPOST

As a reader of your valuable magazine, I want to report another result of humus made according to the *Organic Gardening* method.

Last July, I divided some of my new Irises, planting the divisions in a row with about four inches of humus worked in. Despite the fact that these divisions have been transplanted less than four months, most of them already need dividing again. The foliage is very healthy, vigorous and free from leaf spot or other disease. Naturally, I am anxious to see the quality of the blossoms next summer.

Mr. W. H. Card
74 Lake Shore Drive
St. Joseph, Michigan

—o—

COMPOST MAKES HARD SOIL FRIABLE

We have been subscribers to *Organic Gardening* for about three years, and to say that it has "changed our way of life" is to put it mildly. We started five years ago with a garden plot in our back yard which is approximately 50'x50'. The ground was so hard you could only make a dent in it after a hard rain storm. We tried manure on it and that helped a little, but after we learned about

(*Continued on page 9*)

Burpee GIANT SNAPDRAGONS

3 PACKETS 10¢

Special 75c Value!

The 3 best colors, a 25c-pkt. of each—*Pink, Yellow, Red.*

Rust-Resistant. The sturdy, base-branching plants each produce 8 to 18 long, strong spikes 2 to 3 ft. tall, all closely set with huge, exquisite blooms.

Easy to Grow

Gorgeous in the garden, lovely in bouquets. For you to see the high quality of Burpee Seeds we will mail you all 3 25c-Packets, 1 of each color, postpaid, for only 10c.

Send Dime Today!

Burpee Seeds Grow

W. ATLEE BURPEE CO.

Address: 464 Burpee Building
at nearest city: Philadelphia 32, Pa.
or Clinton, Iowa *or* Riverside, California

☐ Send 3 Packets Burpee Giant Snapdragon Seeds, a 25c-Pkt. of each color (No. 7620). Enclosed is 10c.

Name .....

St. or R. D. .....

P. O. ..... *State* .....

☐ Send Burpee's Seed Catalog FREE

GLADIOLUS CATALOG

WORLD FAMOUS GLADIOLI IN COLOR

New 1950 catalog shows you how easy it is to have exhibition quality blooms in your garden. America's finest collection. Other flowers too. Send postcard for your FREE CATALOG today.

KUNDERD GLADIOLUS FARMS

1210 LINCOLN WAY, GOSHEN, IND.

New! Faribo HYBRID TOMATO

NEW, IMPROVED "SE" Hybrid Yields up to 16½ tons per acre Amazing vigor, prolific yielder. Up to 1½ lbs. delicious, meaty, ½-pound fruits per plant. Just right size for every use. Blight-resistant. Med. early. FREE Catalog describes many hybrids, new hardy fruits, flowers, ornamentals and field seeds.

Write for FREE CATALOG

FARMER SEED & NURSERY CO.
39 N. 9th St., Faribault, Minn.

NEW LOW PRICE
M-E JUNIOR
ROTARY GARDEN TILLER

$248
F.O.B. Milw.

● Tills, mulches, cultivates!
● Same patented time unit as larger M-Es!
● Cuts 12" swath!
● 2-3/4 H.P. engine!

Choose the Rotary Tiller That Does MORE for You

Also 16", 26", and power take-off models

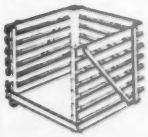
Never before so much power and performance for so little! Write today for full details, nearest dealer, and free folder explaining advantages of Tillers.
M-E Milwaukee Rotary
Write Dept. 1 OG.

ROTARY TILLERS
SOUTH MILWAUKEE WIS.

© 1949 Milwaukee Equipment Manufacturing Co.

ALL THINGS the ORGANIC WAY seem to be GROWING. ORGANIC GARDENING MAGAZINE GROWS in circulation continually, and now the size of its publication GROWS, just an indication of how its usefulness GROWS. CONGRATULATIONS! ORGANIC GARDENING.

We, too, of Willow Grove Earthworm Hatchery are GROWING, having recently moved to larger quarters at Kulpsville.



This scientifically designed unit more than pays for itself with every batch of compost. 4 ft. square in size, it makes over a ton; enough to cover 600 square feet one inch deep.

The Wil-gro is not just a box, it's a compost box engineered to save you time, labor, space and money. Made of weather-resistant cypress. Ruggedly constructed, yet light enough to be easily handled.

Only $18.75 complete plus shipping charges.

Just the thing for the smaller garden. A compost box that measures only 38 inches square will make a good ½ ton of finely finished compost. Same rugged construction for only $15.75 complete plus shipping charges.

Order One Today

WILLOW GROVE
EARTHWORM HATCHERY
Sumneytown Pike Kulpsville, Pa.

Holmes ZINNIAS and MARIGOLDS
2 packets only 10¢
Introductory special: One full size packet Giant Flowering Seeds each: ZINNIAS and MARIGOLDS, (30c value). Send 10c today. 64 page catalog with each order, or free on request.
THE HOLMES SEED CO., Dept. O, Canton, Ohio

What's New

AT HOME AND IN THE GARDEN

Acidity Test Kit

This inexpensive Soiltex test kit determines the acid and alkaline (sourness and sweetness) content of the soil. Handy for the small gardener, this item ascertains the amount of lime needed for the garden. Contains tube of indicator, wax-coated paper strips, colorometric chart, and instructions. $1.05 postpaid. Edwards Laboratory, P.O. Box 2742, Cincinnati, Ohio.

Garden Carry-All

The handy new Choremaster "Garden Carry-All" that speeds garden and lawn clean up. Ideal for leaves, grass clippings, shrubs, plants, etc. This carry-all measures 44" long x 18" high x 24" wide and is made of tough long-wearing, launderable material, supported by sturdy welding tubes. Special Products Division, The Lodge & Shipley Co., Cincinnati, Ohio.

Compost Grinder

One of the newer compost grinders to appear on the market. Manufactured by a concern that specializes in producing all types of grinding machinery, this item handles both moist and dry materials. The machine is steel made and is said to operate at a very low cost. Gruendler Crusher & Pulverizer Co., 2915-25 N. Market St., St. Louis 6, Mo.

Rotary Saw Attachment

A new, power driven, Rotary Saw Attachment for the Gravely tractor has been announced by the manufacturers. The saw can be used horizontally to clear land and fell timber, and vertically to cut firewood, cordwood, mine props, and fence posts. Gravely Motor Plow and Cultivator Co., Dunbar, W. Va.

(*Continued from page 7*)

making compost from your magazine—which fell into our hands quite by accident—we have developed a fine garden spot which is the envy of our neighbors.

Because we are so interested in compost making from the standpoint of what it has accomplished in our poor soil, we think everyone else should be, and are so happy to see that others in our city are waking up to the value of saving their refuse.

We quit having a garbage can over two years ago, and all of our waste goes into our garden. We have a compost pile going all the time with the help of Activo and agricultutal limestone, so there is no odor or anything that our strict city ordinances against garbage dumping can find to criticize. This fall we built a loose framework of boards 4 x 4 feet and have it well packed with refuse, manure, Activo, limestone and soil. By spring we shall have a lot of fertilizer and look forward to an even better garden next year.

Mrs. Glenn Farrand
710 Eaton Street
Jackson, Michigan

—o—

HOT WATER CRACKS SHELLS OF SUNFLOWER SEEDS

In preparing sunflower seed for eating, I have found the best way is to pour *hot* water over them and off in half a minute, then let them stand covered for 5 or 10 minutes. They will then crack easily and quickly.

Mabel N. Andrews
2517 N. Orange Avenue
Orlando, Florida

—o—

ALFALFA MEAL KEEPS TREES HEALTHY

Dr. Qentmeyer of the Citrus Experiment Station, Riverside, has just publicly stated that by the use of alfalfa meal—about 100 lbs. to a tree—outstanding improvement has been realized in the treatment of trees with the "Avocado wilt," "verticillium wilt," "cinnimomi fungus" or—whatever you want to call it.

I am taking pictures of my trees as they now are—and will take pictures from month to month to have a record of the response the trees make to the treatments I give then. I have lost 200, with 200 on the go, with about 400 left to go. (Then I go!)

I was up at the White Mountain Ranch 4 miles from Fallbrook, where they have about 5-300 ft. compost piles patterned after the Indore process. All 80 acres of Avocadoes and oranges and lemons are now composted. They did not have sick trees to treat—they simply were sold on the idea.

Graydon E. Jolly,
Rt. No. 2, Box 749,
Vista, California.

—o—

COMPOST AND ABUNDANCE

I made a small compost pile last fall. This spring I was unable to put in a garden on account of illness. On the 21st of July, I threw some of the compost on the ground and planted some beans in it. I then threw some compost on top, and by the 29th of August, was eating beans and continued to do so until frost bit. No beetles appeared until the beans began to die. A Hubbard squash seed got into the pile somehow, and I had to pinch the ends of the vines to keep it in the garden. The leaves were two feet across. I also got four squash from one seed. One weighed 13 lbs.

Roland H. Lancaster
Wales, Mass.

—o—

MULCHED POTATOES COME THROUGH

We read *Organic Gardening* and enjoy it very much. I save all my

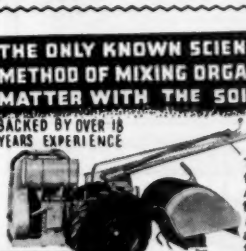
★ GRAVELY ★
TRACTOR POWER

ONE TRACTOR DOES 19 JOBS!
GEAR DRIVEN
A POSTCARD BRINGS CATALOG FREE!
FOR YOUR SMALL FARM
5 HP
2 SPEEDS FORWARD AND REVERSE
GRAVELY MOTOR PLOW & CULTIVATOR CO.
BOX 148 DUNBAR, WEST VA.

Kill Moles WITH A NASH TRAP

The safe, sure way. Can't poison soil. Saves your earthworms. Used by all informed mole control specialists. At dealers, or direct, $2.50 postpaid, C.O.D. fees extra. FREE—Mole control pamphlet. Nash Mole Traps, 164 E. South, Kalamazoo, Michigan.
NASH Choker Loop TRAPS

JOHN OTT *presents*
a series of fascinating
FLOWER FILMS
See remarkable Time-lapse sequence of Dancing Flowers. Especially suitable for clubs. Seven films in sound and color include Time-lapse Photography. Spring Blossoms, Plant Oddities, Flower Arrangements 1 and 2, How to Grow Iris, Gladiolus, Dahlia, Roses. *Free bulletin.*
JOHN OTT
Film Library Inc.
730 ELM ST., WINNETKA, ILL.

THE ONLY KNOWN SCIENTIFIC METHOD OF MIXING ORGANIC MATTER WITH THE SOIL
Models to meet your needs
BACKED BY OVER 18 YEARS EXPERIENCE

The exclusive features of Ariens Tiller — the original all-American all-purpose tilling and cultivating combine backed by 18 years successful experience—put it in a class by itself for your purpose. Complete details upon request. Write.
ARIENS TILLER
ARIENS COMPANY-BRILLION, WIS.

Organic Gardening inaugurates its own
BOOK OF THE MONTH
See inside front cover of this issue for details on how you can *SAVE 20% on clothbound books!*

FREE!
BIG FULL-COLOR
ROSE BOOK

Big 48-page Spring Catalog shows — in FULL COLOR — hundreds of newest, most popular Roses . . . Floribundas, Hybrid Teas, Climbers, Tree Roses and All-America Winners. Also wide selection of hardy perennials. Catalog contains garden hints, helps planning, shows how to save money. All roses offered are **guaranteed to live and bloom!**
Mail coupon NOW.

JACKSON & PERKINS CO. World's Largest Rose Growers
•836 Rose Lane, Newark, NEW YORK
Send me, FREE, new SPRING 1950 CATALOG.
Name .....
Address .....
City ..... State .....

New MIDGET VEGETABLES for the SMALL GARDEN!

NEW HAMPSHIRE MIDGET WATERMELON—A sensation for small gardens! Extra early. Crisp, juicy red flesh of high sugar content.
GOLDEN MIDGET SWEET CORN—Tiny 4-inch golden ears on dwarf, 30-inch plants in less than 60 days. Sweetest corn grown. Full size kernels.
BABY BUSH PUMPKIN—Attractive, compact, upright bushes bear loads of brilliant orange pie pumpkins.
TINY TIM TOMATO—Loads of tiny, 1-inch, fiery red tomatoes on dwarf plants grown in house or garden.
MIDGET MUSKMELON—Luscious 4-inch melons. "Kittenball" size with high sugar content. Mature 60 days.

5 PKTS. OF SEED (1 OF EACH) $1.00

Write for FREE CATALOG

FARMER SEED & NURSERY CO.
39 N. 5th St., Faribault, Minnesota
Please send colorful illustrated catalog.
NAME_____
ADDRESS_____
CITY_____STATE_____

LOOK! A SPROWEL
it's New! Different!

SPROWEL fills the gap between spade and trowel. Great for small area spading—larger transplants—breaking, chopping soil clods—edging plant beds—cultivating—making seed drills. Leverage and balance make it a delight to handle for digging, chopping.

- Length—16¼"
- Birch handle—comfortable
- Brass ferrule
- Spring steel shank
- 4" x 6¼" blade. Premium steel. Sharpened edge, point.
- Built to last

CONSUMERS PRODUCTS CORP.
322-L East Colfax Ave., South Bend 24, Indiana

$1.95 POSTPAID MONEY BACK GUARANTEE REMIT WITH ORDER

copies and file them. We have grown some fine vegetables, pumpkins, and squash. The last two years my cucumbers have been planted in compost and did fine. We had more than we could use.

Our oldest son has written some articles for the *Organic Gardening*. His first one was "Double Chrysanthemum—Sunflowers," in July, 1948. It was he who first tried mulching and now has both my husband and me doing it. This year my husband, Charles's father, planted potatoes in good rich ground, and as the potatoes came through mulched with straw—we now have potatoes so large everyone wonders what he did to make them grow like that. Some weigh two pounds and over.

Mrs. R. V. Applegate
R. D. No. 1, Box 97
Perrysville, Ohio

—o—

NO EARTHWORMS WHEN CHEMICAL FERTILIZERS WERE USED

A few years ago before I learned about organic gardening, I used chemical fertilizers in my small home garden. At that time it was impossible to find enough earthworms for bait for half a day's fishing. The few that I did were almost lifeless, and even the fish did not care for them.

Now that I have been composting for several years, the ground is swarming with lively worms. What worries me is that when I cultivate or hoe I am liable to injure some of them and that tears my heart. Can you tell me whether they really mind being cut in two or whether it is bad for them?

My vegetables are three times as good as they used to be.

H. C. Lyman,
Box 503, Toledo, Oregon.

Editor's Note. *Earthworms have a limited ability to regenerate lost parts. Cutting an earthworm into two or more parts is almost as fatal to the earthworm as it would be to you.*

only 40¢ a foot

New HEDGE STAYS GREEN ALL YEAR LONG
UPRIGHT EUONYMUS RADICANS

Strong and hardy, thrives in sun or shade. Will make big growth first year. For graceful individual shrubs or fine thick hedge; 10 plants make 10 feet of hedge. Attractive!

AS SHIPPED

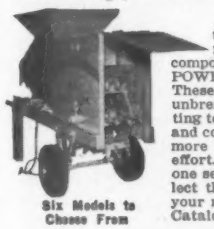
10 2-year plants FOR ONLY $4.00 POSTPAID

SEND FOR FREE CATALOG

Order right away, supplies are low, and this new evergreen hedge should go into the ground now in most parts of the country.

OUR 76th YEAR SARCOXIE NURSERIES
WILD BROS. NURSERY CO.
Dept. 01 Sarcoxie, Mo.

Greater Yield
Healthy, Sturdy Plants



Six Models to Choose From

. . result when you use the richer, smoother moisture-retaining compost mixed by a KEMP POWER SOIL SHREDDER. These sturdy machines, with unbreakable spring steel cutting teeth, mix soils, manure and compost 90% faster and more thoroughly with little effort. Pay for themselves in one season! Write now! Select the machine that suits your needs from the KEMP Catalog.

Priced from $100.

51 Years' Experience Manufacturing Soil Shredding Machines

KEMP MANUFACTURING CO.
Dept. 4 1027 E. 20th St. Erie, Pa.

Orlyt GREENHOUSE $425

Flowers all winter, seedlings by the thousand to set out in the Spring. It is easy with Orlyt. Comes in sections that go together with bolts and screws. Simple to put up anywhere, any time. $425 buys 10 by 11 ft. Orlyt pictured ready to go on your foundation. Other Orlyts and Lean-tos from $190. Automatic heat and ventilation at reasonable prices. Convenient terms available. Ask for booklet No. 27.

LORD & BURNHAM
IRVINGTON N. Y. • DES PLAINES ILL

The 1950 Weather Watcher Hotbeds and Coldframes

Inexpensive, automatic, No-draft ventilation. Prevent overheating or chilling that may stunt or kill your best seedlings. Automatic heat optional. You can now build the new Weather Watcher sash to fit your own frame from the big 1950 construction plans. Send for free folders today and be ready at planting time.

H. R. RAWSON, 4228 Highland Ave. Downers Grove, Ill.

ARTIFICIAL FERTILIZERS CAUSE COMPACT, POORLY AERATED SOILS

I am about to try out your Organis Method of farming, and would thank you to give me a little information.

I have a garden plot about 100 x 100 on which I raise vegetables for ourselves and my son and daughter in the city.

My ground is a heavy clay soil, and while we do get a good return from it with the stable manure and Agrico which I have been using, I find it is very hard to work.

I have used it for this purpose for about 20 years, but it is just as hard to work today as when I started to work it.

I have an abundance of oak leaves in the rear of my property, and perhaps you can tell me how to use these to the best advantage.

I am afraid if I use a compost pile and place scraps from the table in it I will be bothered with rats which I try to keep away from the place.

A. B. Simmons,
Catonsville, Maryland.

Editor's Note. *The leaves should be shredded and returned to the soil directly or mixed with other plant materials in the compost heap. Rats can be excluded from the compost by using a suitable enclosure with wire bottom and wire top.*

ORGANIC GARDENING CLUB OF SAN FRANCISCO

Newly elected officers are:

President—L. F. Mezzera, 2248 Sloat Blvd., San Francisco 16.

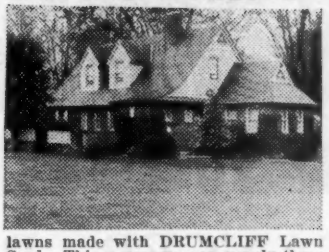
Vice President—Mrs. Velma Goggins, 374 Fair Oaks, San Francisco.

Sec.-Treas.—Mrs. C. A. Pettijohn, Kentfield, California.

The next meeting will be held at the City College Greenhouse (Ocean Avenue), San Francisco, at 8:00 p.m., Thursday, January 26, 1950. All organic gardeners are invited and urged to attend.

AMAZING LAWN IMPROVEMENT

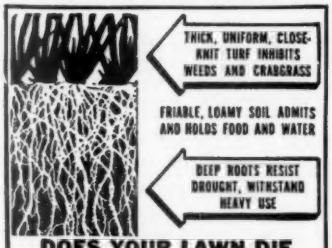
from PRE-TESTED PERENNIAL GRASS



PLAN NOW for that beautiful lawn of your dreams—a thick, velvety, green carpet friends will admire and envy!

Strength—Beauty—Long Life

Hundreds of delighted homeowners have written about the beauty of their lawns made with DRUMCLIFF Lawn Seed. This season we can supply these same, praise-winning, high-grade grass seed mixtures containing liberal quantities of new, *certified* ILLAHEE Creeping Fescue. Makes grass of fine texture; delightful color; does well in both sun and shade; stands up under heavy use.


THICK, UNIFORM, CLOSE-KNIT TURF INHIBITS WEEDS AND CRABGRASS
FRIABLE, LOAMY SOIL ADMITS AND HOLDS FOOD AND WATER
DEEP ROOTS RESIST DROUGHT, WITHSTAND HEAVY USE

DOES YOUR LAWN DIE EACH AUTUMN?

DRUMCLIFF Lawn Seed mixtures contain perennial types that do not die in fall and winter. May be used to build a new lawn, improve an old lawn; repair damage due to drought and crabgrass.

A Better Lawn at Lower Cost

If you want a "show-place" lawn write us today for FREE copy of bulletin "How to Have a Better Lawn at Lower Cost." Tells advantages of *perennial* grasses; how a thick, heavy turf of deep-rooted grass

Inhibits Weeds and Crabgrass

DRUMCLIFF improved lawn seed mixtures are not sold in stores. A limited quantity is available to discriminating homeowners who act promptly. We ship fresh, clean, weed-free, pre-tested seed direct to you with full directions for planting and care.

FREE If you live north of the Carolinas or east of Miss. River, write us today for lawn information. A postal card will do.

DRUMCLIFF COMPANY, Dept. AA, Towson 4, Md.

Grow The Amazing...

Burpee HYBRID TOMATO

Bears Up to Double Ordinary Kinds!

HYBRID Vigor makes the plants grow faster, bear earlier and for longer season! Thick-meated heavy fruits (½ lb. or more each), outstanding in quality and rich flavor.

Smooth, Round, Scarlet-Red

Wonderful for salads, canning and every family use—extra profitable to grow for market. Burpee Hybrid brings rich reward for your care; it sets more fruits even in poor weather. This offer good for limited time only—send stamp for postage and we will mail you 10 seeds FREE. Or, to have more plants: 30 seeds 35c; 100 seeds $1.00; ¼ Ounce $14.00, postpaid.

SEEDS FREE

Excels either trained on stakes or grown naturally

W. Atlee Burpee Co.

Address: 465 Burpee Building
at nearest city— Philadelphia 32, Pa. *or* Clinton, Iowa *or* Riverside, California

Burpee Seed Catalog FREE

The leading American Seed Catalog. Read about Burpee Hybrid Cucumber and other better vegetables, also many new flowers all created by Burpee. See the new kind of Giant Zinnia! A complete directory of all the best Vegetable and Flower Seeds.

BURPEE SEEDS GROW

ORGANIC FOOD DIRECTORY

ORGANIC GARDENING *invites all who have organically grown foods for sale to list them in the* Organic Gardening Directory. *There will be no charge for listing your name, address, and organically grown produce in this directory.*

Write us, telling in detail what you have that is organically grown, detailing how long and in what manner you have applied the method. Write to

Organic Food Division
ORGANIC GARDENING, Emmaus, Pa.

CANCER—PART IX

Foods That Contain Sulphur (Part B)

IN THE last chapter of this series a discussion was begun in regard to certain medical researches involving sulphur in the bodies of cancer patients. There were also discussed a few foods such as glucose, corn syrup, certain baking powders, sulphured figs, prunes and apricots, wines and possibly beers, in which sulphur is used somewhere in their processing. Sulphur and molasses as a tonic, and saccharin and aspirin in which heating with sulphur is a part of the process, were mentioned. As innocuous a food as pickles, sometimes is firmed by alum so that it will not soften. Alum is made by heating bauxite or clay and treating it with sulphuric acid. Alum is used with maraschino cherries and pickled fruits of all kinds, including cucumbers to make them harder and crisper.

When fruits such as peaches, pears and apples are sliced for canning purposes they tend to become browned or discolored by oxidation. This off-coloring is prevented by exposing the fruit to fumes of sulphur dioxide. More recently a compound called thiourea has been used for this purpose, but it contains sulphur also. Such sulphuring will enable one to keep the fruit for months in the refrigerator without discoloring. Even apple juice which has already become darkened may be somewhat restored to its natural color by using this compound. It has recently been demonstrated that thiourea has a harmful effect on the thyroid gland.

Incidentally the book 100,000,000 *Guinea Pigs* by Kallet and Schlink shows that in 1911 the U. S. Department of Agriculture called in a board of scientific experts to study the use of sulphuric acid in foods. Tests were made on men, which indicated that small amounts of sulphur dioxide were harmless to them. Alfred McCann in 1929 studied this report and discovered that the subjects of the tests were young, male athletes. Said Kallet and Schlink in 100,000,000 *Guinea Pigs,* "How reassuring this is to those of us who are not young athletes; whose resistance to poisons has been weakened by sickness or overwork; or who may be suffering from ailments affecting the kidneys, the organs that must carry a large share of the burden imposed on the body by the addition of preservatives and color-improvers in food!"

In some persons who took from three-tenths of a gram to one gram of sulphur dioxide a day, alarming symptoms were noticed after a few months. The report of the experts says that there was noted an "increase in uric acid, destruction of white corpuscles, belching of sulphur dioxide gas, teeth 'on edge', inflammation of the mucous membrane of the mouth, symptoms of malaise, headache, backache, sick appearance, nausea, albuminuria, sensation of cold, white color (anemia), dull eyes, listless manner . . ." Three-tenths of a gram of sulphur dioxide would be contained in six or eight ounces of dried fruit. It is easily possible to take much more than the minimum amounts of sulphur because it is used in so many other food products and one can also inhale it from the atmosphere.

In some cities the water is treated with alum (described above) as well as chlorine. The amounts are extremely small, but the cumulative effect is not to be overlooked. In such cities bottled spring water can be purchased.

I am sure that sufficient information has been given to show the urgency of an immediate investigation into the effect of sulphur in foods on the human body. Surely, some of the money going to the cancer fund could very well be used for such purpose, because the close apparent relationship between sulphur and cancer as discussed and demonstrated in this series would indicate that such an investigation would be worthwhile.

In the field of medication there is also a question of sulphur. The following letter from a practitioner of Physical Therapy in Sulphur Springs, Florida will give an indication of one phase of it:

Sept. 25, 1949

Dear Mr. Rodale:

I have been much interested in your articles on Cancer, and I think these articles should be read by everyone who is interested in health.

Article No. 5 (The Green theory of Sulphur) certainly poses a big question for people around this section of the country, and I in particular would like to have your opinion on the matter.

We aren't bothered with coal

smoke, and its attendant problems but this section of the country does have numerous Sulphur Springs that are used by thousands of people, I have often recommended the use of this water to folks who are victims of certain stomach troubles, and I have been gratified with the results in many cases. I have personally found this water beneficial as a Diuretic, and for constipation. The big question now that confronts me is, "Am I doing the right thing in having my patients use this water?"

I would appreciate an answer to this question if you can offer some advice.

This man has found sulphur water to be good as a Diuretic (promoting the secretion of urine) and for constipation. In medical literature you find that sulphur and sulphur waters have a powerful effect in congested conditions of the liver and intestines, for haemorrhoids, gout and gravel. The question is does it aid one condition but contribute to a worse predicament later? I am not a physician and cannot advise or prescribe. It is up to the medical profession to evaluate Green's work and decide whether the drinking of sulphurous waters should be discontinued. If you would ask me whether I would drink such water I would answer with a most definite "no."

In connection with this question of sulphur containing waters it is interesting to note the incidence of cancer in two southern states where there are extensive water supplies throughout the state that contain sulphur. They are Florida and Louisiana. The average incidence of cancer for southern states, eliminating Florida and Louisiana, is about 80 per 100,000 of population. But in Florida it is 116.1 and in Louisiana it is 107.4, a significant increase. I do not profess to say that it is due to the presence of sulphur in the water supplies, but this question is worthy of further study. It would be worthwhile in those sections to consider the purchase of spring water for drinking and cooking purposes, making certain the sulphur content of the water is not too high.

I would like to reproduce another letter from a man in North Tonawanda, N. Y.:

November 4, 1949

Dear Mr. Rodale:

I have read with much interest, the articles in your *Organic Gardening* magazine regarding SULPHUR and its harmful effects on the health of man, animal and plant.

I am becoming concerned about the continued use of "Sulphur well water" for drinking and cooking purposes.

Our well is drilled 60 ft. and there is a sulphur taste at all times. If approximately 50 gallons of water are drawn at one time, the water is black and heavy with sulphur. This is and has been our only source of drinking water for the family for the last 10 years.

The source of manure for my compost pile is a few New Zealand White rabbits and among them is a male that is quite a pet. For the last two years he has been free to run about the land as he pleases and on a number of instances I have very carefully observed his eating habits. He will never stay on a single spot and eat a single plant but will nibble a few bites of dandelion then turn in random to such things as clover, various weeds, grape leaves, green beans, thistle and sometimes tomatoes or fruit which has fallen on the ground. At night when I feed the other rabbits, he jumps into his pen and eats his portion of commercial feed pellets, however in the spring, starting about the time fruit trees are in blossom he gradually cuts down on his consumption of pellets and finally eats about 25% per day. In the fall he increases the pellet consumption and gets back to normal the latter part of October.

It seems to me that nature has given this animal a sense of diet regulation and he knows what he needs to maintain the proper balance.

Now, getting back to the sulphur water, this rabbit shows no preference between city chlorinated, rain or the above mentioned sulphur water therefore I have felt that if the sulphur water was injurious he would not drink it.

Perhaps other readers of *Organic Gardening* may have further information regarding sulphur water.

I might say to this man, "drink orange juice instead of water." In many European countries very little water is drunk because of its questionable content, and wine is the common beverage, but I am not recommending or disapproving of wine. Some ground water may become contaminated by hydrogen sulfide from industrial wastes passing into the ground. In some cities they control the growth of micro-organisms on surfaces of reservoirs with copper sulfate. In fact, in 1942 the Phelps Dodge Refining Corporation published a book entitled, "The use of Copper Sulfate in Control of Microscopic Organisms," by F. E. Hale, which was published especially for guidance in connection with water supplies. In such cases, no doubt, very small quantities of the chemical are used, but it is the cumulative effect on the human organism of sulfates taken in many different food products and in smoke, which adds up to a danger point. One man has written me that he has rigged up some equipment and distills all his drinking water.

The Saturday Evening Post recently had an article written by Neil M. Clark about a Kentucky farmer who had two farms and noticed that the cows on one were putting on more weight than those of the other. Examining into it they found that the cows which were gaining faster drank well water in which laboratory tests showed a larger percentage of minerals, particularly sulphur. The cows of one group were gaining 1.4 pounds per day, those of the other 2.1 pounds. The article ends with the fact that no one knows exactly why those particular cows gained more.

I do not profess to know either. But the question is, was such gain effected because of the presence of the other minerals which the article

mentions? Secondly, is a gain of weight good from the cow's standpoint, that of its own health? Or, is it good from the milk-man's or butcher's standpoint? Scientific research has continually shown that overweight brings disease. Particularly in cancer is this true. Overweight persons have a better chance of getting cancer. Let us say, granted, the sulphur in the water made the cows gain weight, but did they check further on the life and health of these two groups of cows? Is it possible that the sulphur water cows will die earlier because of the sulphur they received in their drinking water?

For that matter sulphur is a common ingredient of medicines. For example there are two sulphur compounds which are prepared for use as soporifics (sleep inducers), sulfanal and trional. Saccharin definitely contains sulphur. It contains hydrogen, carbon, oxygen and sulphur in combination or compound form. What is the ultimate and later effect on the human body of this sulphur?

Kallet and Schlink in their book called 100,000,000 *Guinea Pigs*, (today there are 150,000,000) describe a meeting between Dr. Huge Wiley of the Food and Drug Department, Theodore Roosevelt, the Secretary of Agriculture and three great ketchup manufacturers, who were using saccharin to sweeten ketchup.

"You tell me that saccharin is injurious to health?" asked the President.

"Yes, Mr. President, I do tell you that," answered Wiley.

"Why, Dr. Rixey gives it to me every day," said the President.

"Mr. President, he probably thinks you may be threatened with diabetes," said Wiley.

"Anybody who says saccharin is injurious to health is an idiot." exploded Teddy, in true Rooseveltian fashion. Teddy was known for his figuritive big stick which he used on all occasions.

Vitamin B_1 (Thiamin) is the only known vitamin today that contains sulphur—an extremely small amount I am not concerned about it when this vitamin is made from natural food sources, but when it is synthetically manufactured that may be another question, and such chemicals should be compared by research and experiment with the same vitamins that are extracted from food products. They are available but you must search if you want to find them.

The most glaring example of sulphur in drugs is the sulfa drugs, in which sulphur is the main ingredient A few months ago the American Medical Association withdrew its acceptance of sulfathiazole and sulfathiazole sodium, because it said that "approximately 18 per cent of patients who receive sulfathiazole develop untoward reactions such as fever, rash, acute leukemia, leukopenia (reduction of the number of white cells in the blood), and other manifestations of toxicity (which compares with about 16 per cent for sulfapyridine, 12 per cent for sulfanilaminde, 6 per cent for sulfadiazine, and 7 per cent for sulfamerazine)."

In the opinion of many experts penicillin and streptomycin, which are products coming from living molds should be given the preference. In 1937 all America was stunned by the taking of 107 lives caused by sulfanilamide. Dr. Royal Lee of the Lee Foundation of Nutritional Research and the Vitamin Products Company of Milwaukee, Wisconsin in a bulletin dated January 1948 says: "the treatment of infective diseases with sulfa drugs, accomplishes their effects solely by drawing into the blood-stream vitamin C, which thereby stimulates the phagocytic elimination of the micro-organisms. It is obvious that the use of sulfa drugs is made necessary only by a deficiency of the vitamin, and a too great deficiency in a patient will cause a failure of the drug, and instead of recovery death will follow. The vitamin could never cause harm, and should be given first, and the sulfar used only as a last resort."

In a statement dated September 25, 1949, Royal Lee further says about the same point:

"At this moment, Sir Stafford Cripps of England is going to Switzerland to be treated for ulcerative colitis, with natural vitamin C from rose hips, (the only kind of vitamin C recognized in central Europe), plus a raw vegetable diet. (Newsweek, July 25th, Page 26.)

"What does the Yearbook of General Medicine recommend as a colitis treatment? 'Sulfathiazole, azosulfamide, sulfadiazine, salzopyrin, penicillin, autogenous vaccines, with a diet of lean meats, white rice, white bread, Italian pastes, well cooked and strained cereals, cooked eggs, butter.'

"Apparently the editors have never heard that the sulfa drugs act only to mobilize into the blood stream the reserves of vitamin C in the tissues, where it can stimulate the phagocytes to fight infection, and that to give sulfa drugs to a vitamin C deficient patient is as disastrous as to write a check on an overdrawn account—*why not use a rational system and give the vitamin C directly?* The real reason is that *synthetic vitamin C* fails to perform here as does the Natural, and the advertising publicity given to the synthetic drugs have put them out in front. The authorities who wrote the Yearbook were so flooded with such propaganda that they had not heard of the European viewpoint.

"The diet they recommend is so devoid of vitamins that a well subject would soon find his health undermined by it. The patient is suffering from an acute condition of vitamin C deficiency . . . and *no vitamin C foods are suggested or permitted.*"

This series of articles is beginning to stir up much interesting correspondence. Here is a typical letter:

"You might be interested in something which I have observed. My mother died of cancer of the liver 20 years ago at the age of not quite 52 and my mother's mother died just four years before that at the age of 75. Although the immediate cause of her death was asthma, yet the undertaker discovered that she had been developing a type of cancer that is very rapid in its growth. Now it happens that a custom in our

family was that whenever there was danger of colds and other contagious diseases they would throw sulphur on the hot stove and burn it, believing that it would prevent disease. My mother and grandmother were in the house more than any of the others.

"A few weeks ago one of my friends died of cancer. When I called to make funeral arrangements the wife remarked about the bucket-a-day stove in the cellar, saying that she thought she smelled sulphur from it. The way she spoke it appeared that it was something that was rather common, i.e., that it must have happened often that the stove threw off sulphur gas."

There must be hundreds of thousands of homes in this country heated by coal stoves in which sulphurous fumes, coming from the stove, befoul the atmosphere of the home. A visiting nurse system could make surveys and explain to people the dangers of such heating set-ups. Something should be done by the medical profession in conjunction with the heating system manufacturers to produce a cheap home heating system that is free of sulphur fumes.

In 1948 a so-called "solar house" was erected at Dover, Mass. which heats a house by means of a glass roof-top which captures heat from the rays of the sun. The heat comes from Glauber's salt which is melted under the rooftop sunshine. Here, I thought, is the final answer to a form of heat which will not release sulphurous fumes to the atmosphere, but when I checked on the formula of Glauber's salt I found it to be hydrated sodium sulfate. That villain —sulphur is a most versatile fellow Wherever you turn, there he is, ready to pour fumes at you or go down your belly. Incidentally, Glauber's salt is a common laxative.

I have since discovered that the Solar Energy Conversion Committee of the Massachusetts Institute of Technology has recently erected a "solar house" at Cambridge, Mass. facing the Charles River which relies only on plain water—no salts of any kind. Let's keep our fingers crossed and hope that it will work.

I read in the New York Times of Nov. 6, 1949 of a new "wet milling" corn starch products plant built at Corpus Christi, Texas, by the Corn Products Refining Company, in which practically all the exterior walls have been eliminated. There are twenty-one major buildings in this set-up but there are no roofs or walls used except in a few cases. I was especially interested to hear that in the "steep house" where sulphurous acid fumes arise in the old style plants the open construction permits the fumes to dissipate, thus presenting no problem. This is a great victory in the field of health improvement in labor and factory conditions. Much commendable work is being done in this branch of human welfare. But how about the sulphuric acid used in making the corn syrup that people will eat? That is the product that is being manufactured in this wonderful plant. It may take another ten years for industry to realize what they are doing to people's bodies, to understand the powers it holds in its hands, to consider the seriousness of the interrelation of corporate profits with human cancer. They will wake up one of these days and discover that with the knowledge of modern technology, some way could be found to eliminate not only the sulphur but other harmful chemical preservatives in foods, and they will have the pleasure of making money while at the same time building their customers up instead of breaking them down.

(To be continued)

Miscellany . . . .

HENRY A. WALLACE VISITS ORGANIC FARM

The prime news of the month was a visit to the Organic Gardening experimental farms by Henry A. Wallace, formerly Secretary of Agriculture and Vice President of the United States. He came with some old-time readers of *Organic Gardening* from White Plains, N. Y. He was deeply impressed. During the course of his visit he mentioned that between 1900-1910 there was a chairman of the Department of Soils in the U. S. Department of Agriculture, Milton Whitney, who was violently opposed to the use of chemical fertilizers, based on researches and experiments which he had made.

In answer to the question, "What do you think of the organic method for application on farms?" Wallace stated that in his opinion it will take until the 1960's for it to be adopted in appreciable amounts. But then, he said, when the pernicious effects of the exhaustion of organic matter have seriously affected the yields of crops' there will be a decided movement toward its adoption. Wallace maintained a correspondence with the late Sir Albert Howard.

MIAMI GARBAGE DISPOSAL

The city of Miami, Florida, in the month of October, signed a contract for the composting of its garbage. Here is an item from *The Seattle Times* which gives full details:

"Miami, Oct. 22.—Miami may be the first United States city to have a revolutionary odorless garbage disposal plant, according to the American Public Works Association.

"Under recently announced plans, a Verdier process project will be built in Miami by private investors, but at the end of 30 years will revert to the city free of costs. For use of the plant the city will pay $390,000 annually—the approximate cost of operating its present inadequate incinerator. An option in the contract also provides that the city can buy the plant outright at the end of 15 years.

Fermentation Process

"Basis of the novel method of gar-

bage disposal is fermentation. The process is rapid, requiring only about 18 to 24 days. Then, too, an end product is created which has commercial value as a low-grade fertilizer. Three of the plants already are in operation in France—the largest at Cannes having been built in 1927.

"Here's the way the plants operate: Refuse is dumped from garbage trucks directly into hoppers where it passes through a chopping machine. Metal is removed and the remaining refuse is dumped into large concrete storage cells. The charged cells are immediately closed and not re-opened until the approximate 20-day period is completed. During this time air circulates through each cell by means of built-in vents and the fermented liquor drained from previous batches is sprayed on the new batch for inoculation.

Heat Removes Moisture

"The heat generated drives off most of the moisture in the form of steam vapor and carbon dioxide—both odorless. The remaining moisture containing the aerobic bacteria, which acts as a seeding element for future batches, is drained off through pipes into an enclosed pump for recirculation.

"After the fermentation period, the mass of humus is released through a trap door into a storage room from where it is carried on conveyors through a final shredding machine and into a hopper for direct loading onto trucks."

HEALTH ITEM

The conservative *N. Y. Herald Tribune* of Oct. 31, 1949, carries the following item:

Poor Soil Affects Health

"Poor soil makes anemic children, according to Dr. Lawson Smith, of the West Australia Medical Department, who traced lack of minerals in the blood to soil conditions in some parts of that country."

ADVERTISING SPRAYS

Instead of hiding his head in shame about putting so much poison spray on apples, here is how one apple grower capitalizes on this terrible scourge to the health of his customers:

APPLES
for
$1.00 bushel
Bring your baskets, and
pick your own.
! ! Sprayed 11 Times ! !

Ministers, from their pulpits, should advise the orchardists that they cannot see how such persons could smugly come to church every Sunday, while engaged in the nefarious way of making a living of slowly poisoning their customers. If a study could be made of how many headaches come from eating sprayed foods of all kinds, it would add up surprisingly.

In connection with these poison sprays Russ Symontoune of the N. Y. Daily News (Nov. 6, 1949) says that it is the chemists themselves who have become a greater menace to public health than the potato bug or the Japanese beetle. Symontoune quotes Dr. James R. Wilson, secretary of the American Medical Association's Council on Foods and Nutrition, from a talk he gave at a meeting of food experts:

"One good, hard working chemist can create more problems than 10 experts in chemical poisons can solve and the nation simply doesn't have enough such experts to tackle the problems now being posed.

"When I was 10 years old," Wilson said, "it was my chore to cut tomato worms in two with a pair of long wooden shears. I also filled many cans with potato bugs. In the good old days a farmer almost had to have a lot of children to compete successfully with the multitude of pests that beset his crops. Today's chemical methods are swift, sure and distinctly less gruesome. We may get less worm juice in our cider but definitely something new has been added.

"Wilson went on to list the new things — all poisonous chemicals — which have taken the place of the worm in yesterday's apple and the caterpillar which used to show up in the salad.

"He named a bewildering number of bug killers which can cling to fruits and vegetables and thus endanger health and life. Others, Wilson declared, contaminate soil so that plants take them up and put them into growing foodstuffs. He cited the cases of babies made ill by the very sterilizing fluids used to guard them against disease-producing bacteria.

Grows More Complex

"The authorities seem to agree that the trouble lies in the growing complexity of the problem. There are laws against adding known poisons in dangerous amounts to food. But very small, legal amounts of poison can become dangerous if eaten long enough, or can become dangerous when they show up with new and previously unsuspected chemicals used either by farmers, food factories or in the making of food packages.

"Wilson wound up his report to the food experts by quoting an American Medical Journal editorial which declared that this may 'well be the beginning of a new era in the science of food and nutrition,' in which the detection and elimination of chemical poisons will be at least as important a job as the ruthless hunting down of disease-causing bacteria in the past."

OUR MODERN FOODS

Regarding our modern foods this is what a columnist called *Observer* said in the Nov. 8, 1949 Buffalo Evening News:

"Why do we have so much juvenile delinquency and so many murders by children? My answer is food. The food we eat now is not a pure food; it contains too much artificial stuff, too many chemicals. It gives the people nervous indigestion.

"Years ago when I was small my mother used to make soup. We had so much of it, I used to get tired of eating the soup, but today I would give anything to get a bowl of it. The meat was cured right. The hams were cured differently. When you ate a piece of it, you could lick your fingers, it was so delicious. I haven't

eaten good ham I don't know for how many years. The ham of today tastes like a piece of leather. They kill the hog today and about three or four days later you get your ham on the table.

"Potatoes, too—when you cooked them before they could stand for a few days. They didn't turn black and you enjoyed eating them, they were so delicious. Now they grow them too fast, they put too much chemical in the ground. Just as soon as you drain the water they turn black.

"The fruit is just as bad, or maybe worse. Every fruit we eat is nothing but chemicals. When you bake an apple pie you don't taste the apples, only chemicals. We used to eat home-made bread with rendered lard and it was healthier than the butter today. The generation was healthier than now—no infantile paralysis or mumps or measles (?)—and why not? The flour wasn't bleached then, the bread was dark, but was food for your system. Now the housewife demands bleached flour chemicals.

"The people today are nothing but nervous wrecks. They can't leave things alone unless they harm somebody. Even the way they behave is terrible, fighting among themselves. We are taught now that we have a better way of living, but only in work. We don't have to work as hard as we did a few years back. We have washing machines, electric sewing machines and many more improvements, but as far as food I say no. We have many things but most of them are artificial, not pure food."

INDIA COMPOST CONSCIOUS

The Times of India, in the issue of May 23, 1949 says:

"About 20 million maunds of additional food are sought to be produced by proper utilization of refuse materials from 4,000 towns of India and converting them into 10 million tons of good quality compost. This is one aspect of the food production drive of several provincial and State governments, which have launched schemes.

"In East Punjab the compost development scheme is already in operation in over 300 villages and a few towns. During the last four months alone, about 40,000 tons of compost were manufactured as against a total production of 46,000 tons during 1948. In Madras, 65 municipalities are at present preparing composts. The stock of raw compost at present on hand is about 43,000 tons."

The United States is beginning to wake up slowly to the crime of burning and in other reckless manner destroying valuable organic wastes. While India is composting the waste by ordinary processes here we are harnessing science to accelerate it. Mr. Joseph Frazer of the Kaiser-Frazer Company is constructing huge digesters at the Chicago Stock Yards to turn manure into compost by means of bacteria in five or six days. In Allentown, Pennsylvania, a similar project is being experimented with with a combination of garbage and sludge. It looks extremely promising.

CITY LEAVES

The Boston Post of Nov. 3, 1949 prints the following:

"If Newton lawns are greener next spring and summer, and if the suburban city's gardens have a bit more appeal than usual, some of the credit undoubtedly will be due to the Newton street department. Using the new vacuum system of clearing the streets of their autumn accumulation of leaves, the department has put a fine sense of economy to work. The leaves will not be burned or put in some dumping place to deteriorate to forgotten dust.

"Instead, they'll be processed into a substitute for well aged compost, and it is planned later to deliver them to Newton householders upon written request for use in the encouragement of more lush lawns and brighter gardens after another winter has passed. It is a bit of nice planning and cooperation which helps to make Newton the proud city that it is."

TOMATOES

Better Homes and Gardens in its Sept. 1949 issue offers excellent advice in regard to planting tomatoes:

"Many gardeners are complaining that their tomatoes are poor this years, with plants infected with the leaf-distorting disease known as shoestring, fern leaf, or curly top. The trouble is a result of the usual urge of gardeners to plant tomatoes too early. Tomatoes set out too soon are a natural target for aphids just hatching, during the time when their natural enemies, like ladybugs, still are scarce. Hibernating aphids carry over shoestring disease and infect the current year's crop. If gardeners would restrain themselves and set out tomatoes only after warm weather has come to stay, they will avoid most of their trouble with this disease."

This is very good as far as it goes but if tomatoes are planted in an organically enriched soil, there will be far less trouble with disease. However, the organiculturist must not become too reckless and figure that once he puts the organic matter in, he can break all the other rules. Organiculture and horiculture are necessary.

BRITAIN GROWS TOMATOES WITH BEER

Here is an item from the Associated Press dated Oct. 8, 1949:

FLEETWOOD (England), Oct. 8—Retired skipper Thomas Jinks has a tip for gardeners—if your tomatoes are not doing so well, give them beef broth and stout beer.

Jinks said he found the combination was a wonderful pick me up when his tomatoes showed anemic signs recently.

"The result," he said, "is simply amazing. A bumper crop on a dozen bottles of stout and half as much beef broth. And the flavor is greatly improved."

A. Simmonds, secretary of the Royal Horticultural Society, took a show me attitude. He said:

"I think the water content of the broth and beer contributes largely to the successful crop."

This item may be worthwhile

(*Concluded on page* 20)

The New Organic Method

By J. I. RODALE

SOME INTERESTING FACTS

IN THE new method there will be some compost making and some digging in or mulching with the raw organic materials, direct to the soil, sometimes only a short period before planting time. I hear hundreds of readers saying: "Will not such application of raw organic matter be a shock to the next crop?" Their question is a good one. It is based on the concept that the breaking down of the organic matter will cause a depletion of the soil nitrogen, due to the fact that the bacteria which do the work of breaking it down have to feed on nitrogen, and thus it will not be available in sufficient amount to the growing crop.

In considering the new method it is necessary to begin to think in altogether new ways. I have come up with the thought that the gardener can easily insure himself against nitrogen depletion when he applies raw organic matter to his soil by purchasing and applying a small amount of ground-up soybeans, which are unusually rich in nitrogen. The nitrogen content of grains can be estimated from the few which are here given. The nitrogen content of corn is 1.82 per cent, that of oats is 2.10 per cent, while that of soybeans is 5.30 per cent. The high nitrogen content of the seeds of legumes makes them especially suitable for maintaining nitrogen in the soil during the time raw organic matter is being decomposed in it. From a gardening standpoint not only is the cost reasonable, but we may possibly obtain spectacular results with its use. It has the advantage, if ground up, of decaying quickly in the soil and making its nitrogen available to replace that consumed by the bacteria which are breaking down the raw organic matter.

This is a new conception in the use of fertilizer materials. I have not seen it discussed before anywhere, and it opens up a fascinating field. With competitive farming practices that will soon create surpluses, prices of farm seeds will tend downward. Such seeds as wheat, barley, oats, rye, corn, soybeans, buckwheat can all be used by the gardener as a fertilizer. They can be applied raw if ground up fine. In fact for certain uses as with flowers, they can be fermented in two or three weeks time, by piling them, with the necessary amount of moisture. They can be purchased already ground from farm feed dealers and for fermenting should be ground first. A chart is given at the end of this article of the content of various seeds. Recently I applied ground-up whole wheat on a lawn as a fertilizer It was hosed in so that it would cling better to the earth. Its cost, ground up was 4½c per pound in 100 pound lots. This opens up the use of many organic materials, especially to the city man who has a tiny garden and who could never make compost. Dried blood is another richly nitrogenous material which can be applied where raw organic matter is to be dug into the soil.

I believe if the soybean growers association would hear of my suggestion that soy-beans be used as a fertilizer they would write me a nice letter of thanks. Up to recently practically 1/3 of all the soybeans raised in this country went towards the furnishing of fats used in bread-making. Recently a chemical with a jaw-breaking name—polyoxyethylenemonosterate, has been substituted, a synthetically manufactured chemical, for soybean fats and the soybean people are up in arms about it. In public hearings they did not complain about the threat to public health of using a large amount, in some cases almost 2% of the bread, of a synthetic chemical. They were concerned only about a loss of income to themselves. If enough people knew the value of soybeans as a fertilizer for their gardens, this 1/3 slack in the soybean output could easily be taken up.

Coming back to the question of whether plowing under raw organic matter would shock the next crop because of nitrogen depletion, I have read of this many times in agricultural literature. But we of the organicultural persuasion must analyze every statement that we read critically in the light of the fact that experiments and tests are usually made under conditions and on land where chemical fertilizers are and have been used. I am sure that there is a tremendous difference on the reaction of land to plowed under raw organic matter as between a soil that has received chemical fertilizers and poison sprays let us say for 40 years as against one that has been treated only with organic matter and mild ground rock materials for as short a period as four or five years. Surely the bacterial count on the chemical land must be far lower than that of the biologically, organically treated soil.

As a typical illustration, Sir E. John Russell in his book *Soil Conditions and Plant-growth* describes a bacterial count taken at the Rothamsted Agricultural Station in England. In a field treated with farmyard manure 28,860,000 bacteria were counted per gram of soil. Where chemical fertilizers were used, only 15,100,000 bacteria were found to be present. Lyon and Buckman in *The Nature*

and Properties of Soils note that all the ordinary types of algae are greatly stimulated by the application of farm manure. Fungi are also far more prevalent in a soil rich in organic matter. In addition to chemical fertilizers, the use of poison sprays, such as copper sulphate for potatoes, depresses the amount of bacteria and fungi to a dangerous point as far as the health of the soil is concerned. The earthworm practically vanishes under such conditions. Aristotle called the earthworm the intestines of the soil. He did not know about bacteria and fungi, otherwise he would have included them also in that category. Together they are a powerful factor in breaking down, or digesting large masses of organic matter that is put into the soil.

Lady Eve Balfour in her book *The Living Soil,* which will soon be available to readers of this magazine, illustrates by an experiment the enormously increased rate of cellulose decomposition in soil to which compost has been added. She says: "In an experiment designed to measure this factor cotton-wool pads of known weight were buried for four months in untreated Wareham soil, in ordinary woodland soil, and in Wareham soil plus C5 compost. At the end of the period what was left of these pads was dried and reweighed. Representative results based on many repetitions of the experiment showed that in untreated Wareham soil only 10 per cent of this cellulose had been decomposed, in the woodland soil the figure was 33.6 per cent, but in Wareham soil plus compost the percentage of decomposition was over 91 per cent."

By the organic method the soil becomes much more abundant with fungi and bacteria which have no difficulty in digesting organic matter that is given to them. You can now understand why, when a scientific paper comes out of an Agricultural Experiment Station proving that the plowing under of an abnormal amount of organic matter temporarily depresses the ability of the soil to give a normal yield of the current growing crop, that it is a condition brought on by their method of farming which interferes with the biologic health of the soil.

Another interesting factor Lady Eve Balfour mentions, should be considered in this discussion. The use of organic matter improves the structure of the soil so that it can breathe better. The use of chemicals hardpacks the soil so that lack of aeration must be considered. This shutting-off of air favors the activity of certain anaerobic organisms such as sulphur-reducing bacteria, which produce hydrogen sulphide. This gas prevents fungi that are responsible for the decomposition of organic matter, from working, with the result that this stagnation in the decomposition processes causes the production of additional hydrogen sulphide gas, thus setting up a vicious, dangerous cycle.

So you see that the question of appraising the effect of putting organic matter directly into the soil instead of in a compost heap must be considered in the light of the condition of the soil. If you are a beginner in the organic method and are starting with a piece of land that has been abused by chemicals, it would be best to start with making compost, but use the new method of making it, in an enclosure of some kind with a cement base so that the liquids are not lost, and a covered top so that air does not get to it too freely. It does not have to be a vacuum.

We know about the nodules on

MINERAL CONTENT OF SEEDS AND GRAINS

SEED	Calcium %	Phosphorus %	Potassium %	Sodium %	Chlorine %	Sulphur %	Magnesium %	Iron %	Manganese Mg. per lb.	Copper Mg. per lb.
Barley	0.06	0.37	0.49	0.06	0.15	0.15	0.13	0.0008	8.0	5.8
Beans, field	0.15	0.57	1.27	0.09	0.04	0.23	0.17	0.0012	8.4	4.5
Beans, Lima	0.09	0.37	1.70	0.03	0.03	0.20	0.18	0.010	7.3	3.7
Corn, dent	0.02	0.28	0.28	0.01	0.06	0.12	0.10	0.003	2.6	1.8
Cottonseed	0.14	0.70	1.11	0.29		0.24	0.32	0.014	5.5	22.7
Cow pea seed	0.11	0.46	1.30	0.27	0.04	0.25	0.26	0.036	18.2	2.0
Flax seed	0.26	0.55	0.59			0.06	0.40	0.009	26.0	
Kafir grain	0.02	0.31	0.34	0.06	0.10	0.16	0.15	0.001	7.4	3.0
Millet seed	0.05	0.30	0.43				0.16			
Milo grain	0.03	0.28	0.36				0.22	0.005	5.9	7.8
Oats kernels	0.08	0.46	0.39	0.05	0.09	0.20	0.15	0.010	16.8	3.6
Oat grain	0.09	0.34	0.43	0.09	0.12	0.21	0.14	0.007	19.9	3.8
Peanuts — No Hulls	0.06	0.44	0.54	0.56	0.02	0.25	0.18			
Rice, brown	0.04	0.25			0.08			0.001	9.2	1.2
Rice, grain	0.08	0.32	0.34		0.09		0.14			
Rye grain	0.10	0.33	0.47	0.04	0.02	0.16	0.12	0.008	37.0	3.4
Soy bean seed	0.25	0.59	1.50	0.22	0.03	0.22	0.28	0.008	13.4	7.1
Sunflower seed		0.55	0.66					0.003	9.8	
Sunflower seed, Hulled	0.20	0.96	0.92	0.03	0.01	0.02	0.38			
Wheat grain	0.04	0.39	0.42	0.06	0.08	0.20	0.14	0.006	19.9	3.7

roots of leguminous plants which contain bacteria that can extract nitrogen from the air. That is why crops like soy beans, alfalfa and clover can enrich the land with nitrogen. Few persons, however, are aware that there are free acting organisms called *azotobacter* that also have the power of getting nitrogen from the atmosphere, and that they are present especially in soils rich in organic matter. In a healthy soil therefore, where the organic method has been followed for a few years, and there exist large quantities of azotobacter, there need be no fear of digging into the soil directly the material that was formerly made into compost. In this way the liquids of the material will go right into the soil where the plants are to be grown and not into the site of a compost heap which is used only for making compost and thus wasted.

This illustrates again that the organic method is like putting money in the bank. The soil keeps on improving each year. The bacteria, fungi and other soil organisms multiply, so that they can easily handle the additions from time to time of liberal amounts of raw organic matter.

J. I. RODALE

Miscellany . . . .

(*Continued from page* 17)

studying in the light of the new organic method wherein organic materials are applied directly to the soil. Both the beef broth and the beer are loaded down with organic matter. The fact that they are liquified enables them to leach down readily into the soil, impregnating a large area, and actually bathing the roots of the plants. In the same manner I do not see why an application of tomato juice would not be a good tonic for growing tomato plants.

Hedgerow Horticulture

By JEANNE PONTIUS RINDGE

ALL around the farm, Nature is laughing at the farmer. And the pity is, the farmer doesn't know it. It isn't his fault, really. He is so busy, dawn to dark, doing things the way men tell him to do them (men who are supposed to know, too) that he has no time for seeing—or hearing—Nature's own story.

By "all around the farm," I mean the hedgerow. Of course, most modern farmers aren't lucky enough to have a real hedgerow—the kind that will give Nature a chance to talk. We were lucky. Our predecessors failed to take "proper" care of our farm. Acres were allowed to lie fallow (filling the sandy soil with humus—strangely missing from neighboring acres), and the hedgerow was allowed to creep wider and wider, until in spots it is fifty or more feet in width.

Our neighbors were so hopeful when we moved in this Spring. "At last," they said, "we can clean up the hedgerows." One neighbor, a good farmer, too—who manures his fields daily, come snow, sleet, or hail—shakes his head sadly when he observes the heap of stones and rambling overgrowth between our fields. "Waste, just waste," he sighs, "Do you know, there are acres of land there going to waste."

He is a dairy farmer, and of course he is right, in his way. The thickets grow no tall corn. He can cut no hay there. Wheat, oats and barley nod in careless confusion, but they are no good to him.

While his pasture dries to a brown crisp, due to many rainless weeks, and the field corn, sparsely germinated, struggles in the dust, our hedgerow is telling its own tale of lush production. For weeks, undisturbed by drought, red and purple raspberries hang in fat clusters from stems blue-green with minerals. The canes are sturdy, and only in exposed places (exposed, I suspect, to windblown chemicals from neighboring fields) are there insect-riddled leaves. The more shaded and protected the patch, the healthier are the plants

and there is no sign of insect damage.

Our cultivated berry patch, on the other hand, tells a different story. The drought dried up entire canes; the leaves are lacy with holes, and only here and there did we gather a limp berry.

Glass after glass of jam and jelly line our basement shelves, made from the wild raspberries, and from wild cherries, both black and red, which seeded themselves in the hedgerow. The trees, boulder mulched, produce small, but very sweet cherries. We found but one worm among them, and the only sign of damage was that made by the pecking of birds. Many quarts are waiting in the farm freezer for winter use, and the children ate cherries by the handful. There was no need to admonish them, "Wash off the spray," for the hedgerow trees never have known a poison spray—or needed one.

Beyond the big elm by the pasture gate, choke cherries are ready for picking. As they are said to carry the Virus X disease of peaches (also of cherries, they say) I suppose we should destroy them. The hedgerow cherries, however, seem perfectly healthy, and our few peach trees (which are changing over to the organic method) are many rods away. Have you ever tasted choke cherry jelly? Neither have I, but I have a heavenly sounding recipe which I am anxious to try.

Fruit is forming on the hedgerow elders, here and there. The use of elderberries is a story in itself. And the brilliant bunches of mountain ash berries peek through a canopy of wild grape. The whole hedgerow is garlanded with grape, which without doubt, will "take over" unless we take measures to stop it. But my mouth is watering for the tang of wild grape jelly, and the children love the "caves" and "tents" made by the broad leaves.

The butternut and shagbark hickories, further back in the hedgerow, are held by the grape in a cobra grip. But the trees are healthy, and their harvest will occupy us during many Autumn hours. Actually, the largest raspberries we found were those hidden beneath the leaves of wild grape.

These "waste acres" are yielding us food for the taking, with neither planting, cultivation nor spraying on our part. What is their secret? No one yet knows the whole of it. Nature, however, has taken millions of years to develop her horticultural methods—methods which we can observe and study in the hedgerow.

Certain things become clear: the heavier the mulch of stone, trash, and leaves, the more lush is the growth, and the greater the resistance to drought and disease. Seeds, bird-scattered from the fields, produce a richer green of foliage than do their cultivated brothers (chemically fertilized). Birds abound, and besides the symphony of their song, there is the job they do of controlling insect life more naturally and effectively than do poison sprays.

There is a zip to the taste of wild fruit which no cultivated fruit can claim. There must be nutrients there, too, which the chemically blown-up variety never can offer. In the hedgerow there is yield in the midst of drought, healthy plant life while disease stalks on every side.

Hemmed in by cultivated fields, there cannot be as complete "balance" as Nature would have it, in the hedgerow, but surely there is an approximation of it. Left alone, the hedgerow completes its own cycle of birth, death, and rebirth. It is its own source of renewal, unassisted by man's devices.

Think long before you destroy your hedgerow—listen first to its whisperings. You may yet unlock its secret.

I don't believe *that*

green matter should be allowed to wither before it is added to the compost heap . . . . . .

by Leonard Wickenden

ON this point, my belief runs contrary to that of any of my fellow organic gardeners. The procedure is widely advocated, especially in England (where the preparation of compost is, if possible, even more of an art and a science than it is in this country) but I have never found a very satisfying explanation of its advantages. To me, it seems to have definite disadvantages. In the first place, the heap needs moisture and withering is largely a matter of losing water. The moisture content of a fresh leaf is very high but as it withers it becomes drier and drier until, if conditions are right, the moisture content drops very low indeed. The fresher the leaf, therefore, the more moisture it will bring to the heap.

In the second place, fresh vegetable matter heats up more rapidly and more readily than dry vegetable matter. In fact, as everyone knows, the heap must be sprinkled with water in dry weather if rapid decomposition is to be maintained. It does not seem logical to me to allow matter for the heap to dry out partially and then add water to it after it is put on the heap. Perhaps my reasoning is wrong; if so, will somebody put me right?

Friends of ORGANIC GARDENING Can Help Build Circulation by Handing Out Free Subscription Booklets

Organic Gardening is constantly striving to increase its subscription list. It is important that we tell as many people as possible about organic gardening. Perhaps you would like to take an active part in this important program by handing out our subscription booklets to friends, neighbors, and acquaintances in your community. If you would like some extra money, this spare-time activity will return liberal commissions. The booklet will induce your prospect to subscribe. Through a coded coupon we can trace each subscription to your efforts.

SEND FOR FREE BOOKLETS Write to Organic Gardening, Dept. Q., Emmaus, Pa. We will be glad to send you 25 or 50 booklets. Sate how many you want.

GOETHE

THE FATHER OF AN ORGANIC CONCEPT

By DR. EHRENFRIED E. PFEIFFER

Director of the Biochemical Research Laboratory, Spring Valley, New York

Author of "Grow a Garden," "Bio-Dynamic Farming and Gardening," "The Earth's Face and Human Destiny."

THE present age is marked with the imprint of the coming atomic energy. The atomistic concept lies at the basis of our knowledge and the resultant scientific research. This concept seeks to explain nature by splitting her forces and energies into the smallest possible and thinkable units—the atoms. The Greek philosopher Democritus, over 2000 years ago already brought forward the idea that matter is built from the smallest particles, which he called atoms. Modern physics has added much detailed material to the knowledge of the atom. It has discovered that this atom consists of still smaller units of matter and energy, proton, neutron, meson, etc., etc. It seems to be a continuous process of "splitting" which goes on, splitting also in our method of thinking which leads to the atomistic concept.

This method of thinking wants to find answers to many questions, such as: "What is matter?" "What is energy?" "What is light? heat? electricity? magnetism?" but also "What is life? growth?"

Growing forth from this method of thinking, namely to break nature and its products down into smaller and smaller units, was that school of thought in biology which tried to explain life and growth by analyzing chemical and microscopic living organisms, *i.e.* by breaking them down. The cellular structure of organisms was discovered. For long it was thought that one might find the seat of life in the cells, the protoplasma, chemically expressed, in protein. The human body has been broken down into its smallest units: nerve fibres, muscle fibre and tissue, connective tissues, etc. With the discovery of every new part one thought science had come nearer to answering "what is life?"

Analysis was the method in vogue. The word analysis is derived from the Greek, *ana-lyein,* which means "to dissolve," "to break down." In order to analyze one needs to kill, break down, disintegrate the originally living organisms, to break it down into its parts and particles. This analytical method and its results are fascinating. No wonder "analysis" has become the watchword for the investigating mind. It has so far assumed the mastery of our thinking, consciously and subconsciously, that we believe that only by this method will we receive answers to pending questions. Subconsciously it has affected our entire behavior and will to the extent that even a moral and social process of dissolution has been established which leads to the world events of today, for even here we observe disintegration in every regard. It has brought about a kind of agnosticism and a pessimistic world concept in the final analysis.

In contrast to this analytical and atomistic point of view is the synthesizing biological point of view. Biol-

ogy, the study of life and its functioning, teaches on the other side that analysis can only observe the fragments of life, the bricks out of which it builds its organisms. But there is more than the "bricks." There is the fact that they are held together for a certain period, the lifetime of an organism, that they grow, reproduce, have a certain constancy of form or pattern, have certain characteristic behaviors.

It has been shown and understood that *life* is not the mere sum of the parts. We believe that by adding up all knowledge of the parts, chemically, physically and morphologically, we can explain life. The fact that an organism exists, in short, lives, is, however, more than this summing up.

A biological concept has been created recently which says that the *Whole* is not the sum of its parts but that there is also an organizing power which keeps these parts together, makes them work. The Viennese biologist Bertalauffy has created a school of thought followed by many, which speaks of Whole-ism in the study of living organisms. We call this biological thinking, to see forces at work which not only synthesize, but see in the *Whole* more than the sum of the parts. This biological method of thinking is only in its infancy, its very beginning. However, it gives another outlook than that of the atomistic point of view. It gives hope that life can be understood, that a synthesis can be built which in turn may lead to constructive ideas also for human behavior and the social structure, putting things together rather than separating them.

Goethe fostered this constructive method of thinking 150 years ago. To most he is known only as the poet, writer of *Werther,* of *Faust.* But in his natural scientific writings he pointed to that biological concept which humanity needs so much lest it disintegrate completely. In fact the sentence: "The whole is more than the mere sum of its parts" was first formulated by him. He also originated an important point of view when he said: "Every analysis requests a synthesis. In fact the synthesis precedes the analysis." For were there no synthesis which has put matter and forces together we could not analyze them, take them apart afterward.

Bertalauffy, the famous modern Viennese Biologist, says (*Biol. Zentralblatt,* 49, 2. 1929): "How does it come that in general the very complicated transformation in an organism takes place in such a way that throughout the years and decades the organic system remains almost stable? Which is the principle of coordination? The question why all these upbuilding and breaking down processes maintain the whole is not at all answered even though we know exactly all details, even though we may explain as many as possible details with a chemical formula. Up to now the physiologist has used only the analytical method. The investigation of the individual physical-chemical process will need in the future a synthetic method . . . a formula cannot explain why out of a multitude of possible syntheses and reactions which are in question just this one particular process happens . . . the sum of all these formulas does not yet answer the real biological problem, namely the question of the harmonizing (coordination) of the process. Therefore, we do not find in a single group of substances any particular property which makes life understandable. Thus we can predict in advance that no new physical or chemical discovery will suddenly give us the key to the understanding of life."

Goethe said: "A century which insists only upon analysis and is afraid of synthesis is not on the right path, because both together create the life in science, like inbreathing and outbreathing." One process demands the other. In following this basic concept of Goethe a biological science could develop, and will develop towards the future, which is apt to understand life. That is why we can call Goethe the father of an organic concept.

Goethe was born in 1749 in Frankfurt am Main. During the mature part of his life he lived in Weimar. *Faust I* and much of his poetry was written in his youth. The middle part of his life was taken up with administrative work; he was what one might call today Minister of Commerce and Finance of the small German State of Sachsen-Weimar or Thuringen. During this period he was the thoroughly experienced councilor and businessman he must have been to run the intricate machinery of a state, of mining and revenue. In his mature elderly lifetime he wrote *Faust II* and experienced a revival of his poetic powers. Goethe's outstanding feature was his manifold interest in all living, growing things, in art as well as science, in nature as well as human beings. He had friendships and correspondence with all the leading men of his time, particularly with those who were concerned with a humanitarian point of view and aiming at an increase of knowledge and civilization. He detested in the extreme a man like Napoleon who was shaking the political world at that time. To Goethe's refined knowledge and civilized attitude such a personality must have appeared crude, soul-less, cruel, uneducated, as it was, in fact. (It may be remembered that most of

Men of Organic Farming

This is a series of articles devoted to leaders in the field of Organic Farming and Gardening. It is highly fitting that this series should begin with Johann Wolfgang Goethe whose 200th birthday, August 28, 1949, has been celebrated during the past months. Goethe was a poet, naturalist, gardener, and landscapist. He followed the ways of Nature, and may be regarded as a pioneer organic gardener.

the troubles of a nationalistic nature from which we suffer today in Europe we owe to Napoleon, for it was he who gave Europe the boundaries which existed up to 1918.)

Goethe can be termed the tycoon of the spiritual concept. Had his mission been recognized and carried further, as did his interpreter Rudolf Steiner, no political Germany of the style of Wilhelm II or Adolf Hitler could ever have come into being.

Goethe's manifold interests in natural science are condensed in studies and writings about geology, plant life, meteorology, color and general natural philosophy. His approach was unprejudiced by theories and hypotheses. He was a phenomenalist. This means that a description of the observable phenomen was to him the basic item of knowledge. His thesis was that phenomena would explain themselves if we only collected enough and waited patiently (in mind) until all the phenomena were known. In an hypothesis he saw something which was artificially added by the impatient human mind, being of incomplete reality. For man, a creation, would not be able to grasp in mind the totality of a creator by thought alone. In other words, hypotheses and theories fall short of reality. They are only applicable to a limited, selected field, covering a part but not the whole. Goethe therefore postulated that we should develop another form or power of reasoning beyond that of abstract thought. Only such a "living" method of thinking would be adequate to follow the phenomena of life, of growth. He called this method "anschauende Urteilskraft", contemplating power of reasoning. The idea was that in looking at things one would perceive a mental picture or image which would reveal the deeper idea in accordance with which they are created. One would find the creative idea itself. Goethe must have possessed this faculty to a high degree. One day he had an argument with Schiller, the poet-philosopher. When Goethe explained his concept of the "Urpflanze", the primal plant form which is at the basis of all plant forms, Schiller answered: "Yes, but this is only an idea." Whereupon Goethe exclaimed, "I am glad to have ideas and to see them with my own eyes."

To intensify one's own thought to the point where basic ideas become visible in one's mind by an act of concentration—this faculty may sound strange to the analytical, abstract mind which has to take apart, to atomize in order to know. To Goethe it was an experienced fact which enabled him to think synthetically and biologically, to apply a constructive method. One result of this method was Goethe's teachings of the principle of metamorphosis in the plant. The idea was based on a study of form, pattern and the function of plants. An inner relationship between these was found. The pattern of the leaf was the basic "idea" beyond the phenomenon "plant." All other forms of a plant, stem, even root, calyx, fruit, petals were only a metamorphosis of one basic pattern.

The idea is fascinating for one who wants to see the "whole" in nature for it contains in its application that which can be discovered as creative force or principle, which holds the parts together and makes them work. To the analytical and systematic botanist the idea has not yet appealed. Goethe had difficulties at first in making himself understood. For those who could not follow, his wife Christiane included, he wrote down the poem "Metamorphosis of the Plant," one of his poetic masterpieces.

The idea of the metamorphosis of pattern can be applied in other fields too. In the anatomy of the vertebrates a definite principle of metamorphosis is apparent in the way the skeleton is built. The vertebrae show an inner constructive relationship morphologically, which again appears metamorphosed in the bones of the skull. Strangely enough, Goethe's theory in regard to the vertebrae is generaly accepted while botanists still don't want to bother with his idea about plant metamorphosis.

There is possibe, however, a practical application in the plant realm, as the writer has tried to explain years ago. This would be to establish a relationship between plant form (pattern) and function and to demonstrate the metamorphosis of certain principles throughout the plant families as an interconnecting link. The "whole" of a given plant or plant family is constant, that is the sum total of all the phenomena interrelated to make one species or even one single organism work, are in such a relationship that if one changes one factor, all factors change accordingly. Now, since shape, pattern, physiological function, chromosomes, inheritance, environment, nutrient, soil with all its chemicals and humus, light, warmth, climate, etc., all form the whole out of which each plant individual consists in its life appearance, each change of a single factor influences the entire system. The maintenance of species is due to the constancy of the pattern total.

The blossoms of members of the nightshade family show a more or less inverted calyx. The nightshade plants also evidence different degrees of effectiveness as poisons. Bittersweet, belladonna, tobacco (nicotine) contain more of the poisoning principle, potatoes and tomatoes less or none. The calyx of the poisonous members of this family is more inverted, the calyx of the nonpoisonous members is less or not at all inverted. The depth of the calyx can almost be taken as a measure of the degree of poison present in the individual members of this family.

The family of the *Labiatae* is distinguished by its aromatic oils with attractive scents. Its herbs are frequently used for perfumes and flavoring. The smaller and more complicated the structure of the leaves of a single member of this family, the more aromatic it is. The coarser and larger the leaves the less fragrant is the plant. Compare a peppermint or lavender leaf pattern

with the leaves of the dead nettle and contrast the odor. You need only open your eyes and observe and you will find the most interesting congruities and similarities.

The bulky, head-shaped members of the *Cruciferae* are food plants, cabbage, cauliflower, Brussels sprouts. The tender, more delicately formed members are aromatic. There is not only a metamorphosis of form, of morphology, but one of inner chemistry, of physiology, of function too.

The reader may say that this is fascinating in a philosophical sense but what has it to do with organic farming? The few examples we have mentioned may have shown already that the application of Goethe's basic philosophy leads to a study of nature where more inner relationships in plant life can be found by the careful nature observer. The haphazard methods of trial and error can be improved and innate properties of plants can be anticipated at once by looking at them. The extension of Goethe's biological concept, into the fields of farming, of gardening, of soils, of landscape, leads directly to that which is known today as our organic concept. Just as a single plant is an organism in itself, so also is a plant family, a garden, a farm, a landscape. All the factors of soil, its treatment, plant associations, or companion plants, soil exhausting and nitrogen restoring plants in a garden or farm, plus the microlife in soil, drainage, conservation, or monoculture—all these form an organic unit or whole. The whole of a landscape has to be considered if we want to conserve it and not ruin it by erosion.

Goethe's philosophy is constructive, upbuilding. In his personality there were combined the investigating mind, the esthetic sense, the creative power of the artist, and the power of one who does not "believe" in God but experiences Him in every manifestation of the creation. He was a true *homo universalis*, setting an example to be followed. Julian S. Huxley, in an article "Species and Evolution" (*Endeavour Vol. V. No. 17. January* 1946) says, "It is a rule of evolution that new major types become dominant by branching out into lines of increasing specialization and that each specialization eventually comes to a dead end." The human species seems to make an exception to this rule as far as bodily structure is concerned. But the human species demonstrates that principle of specialization in mind which the other realms of nature show in bodily structure and pattern. The danger is that through our specialization of mind, of intellect, of behavior, of science, human civilization might come to a dead end. Goethe tried to fight this overspecialization of the mind in his art as well as in his natural philosophy. He has set an example upon which we can build. May his organic concept inspire future generations. Then our organic endeavour will not be a "fad," as many say it is, but it will become a science and a way of living. Goethe's last words were: "More light—open the shutters."

What Do Cutworms Eat?

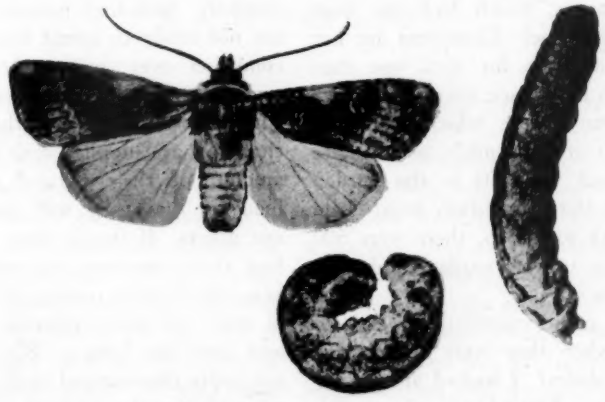
Should Cutworms be Regarded as Garden Pests?

By A. W. FORBES

THERE are many kinds of cutworms, but the ones that I am talking about are the common ones we find in our gardens, which cut off our bean, tomato, and other plants. They grow from eggs laid by moths in the fall, but at that time they eat so little that they are seldom noticed. In fact, I have never seen one to recognize it in the fall. They hibernate in the soil through the winter as very small caterpillars, and then, when the soil begins to get warm, they start eating vigorously. In Massachusetts this is early in May.

People who have tried feeding them in captivity find that they will eat large quantities of almost any green plant which they are offered. And in this garden, if there are large numbers of them, and a shortage of food, they attack nearly everything, even climbing trees or grape vines in their search for food. In about a month they become full grown, and then they are about 1½ inches long, naked, with inconspicuous markings, and of a color that might best be described as dirt-colored. They are so much like dirt in appearance that we can often look straight at them in a handful of soil without seeing them.

So when I ask the question, "What do cutworms eat?" I do not mean



Adult and larva of a cutworm

to include the list of things which they have been known to eat. I mean what do they eat as a normal and regular diet as they are usually found in our gardens. As May is the period when they do most of their destructive work in Massachusetts, I selected this month for a daily examination of my garden, in an effort to find out what the cutworms were doing.

The record showed the loss of the following plants in a vegetable garden of about 3500 sq. ft.:

1 tomato
1 egg plant
1 cucumber
1 radish
6 beans

In addition the cutworms cut off parts of the following plants, without seriously damaging them:

2 tomato shoots
1 cabbage leaf

So the total damage done was trivial The tomato and egg plants were replaced from surplus plants which otherwise would have been thrown away, and it is quite possible that the others may have been benefited by a little thinning, for most of us plant too thickly.

It might appear from this that there were very few cutworms in the garden, but further examinations showed that this was not the case. 10 cutworms were found accidentally where no damage had been observed. For example, in planting a row of beans, two were noticed in the row, which had been uncovered by the hoe. How many were there a few inches away, which had not been hit by the hoe? Cutworms are not conspicuous, so for each one that was seen by chance, there must have been many more which were not seen. Is it too much to estimate that there were 50 in the garden for each one accidentally seen? I do not think so. If so, there were 500 cutworms in this garden, and only 10 plants cut off.

What could cutworms have been eating when they were not cutting off my plants? I looked around for indications. I found some plants with nibbled leaves, particularly young peas, and this might have provided food for a few of the cutworms, or the damage, slight as it was, may have been done by something else. I looked at the weeds, for there were some dandelions for example, which had lived through the winter, but I did not see any damage done to any of them. One entomologist told me that my figures were not surprising to entomologists, for they knew that cutting off plants was merely incidental in the diet of cutworms. He expressed an opinion that cutworms liked dandelions, and so we dug up several of these, but failed to find a cutworm at the roots, or any cutworm damage.

I inquired from other entomologists, but not one could give any information about the regular diet of cutworms. I looked in the books on pests readily available, and all mentioned that the cutworms cut off our garden plants, but none made any mention of their diet at other times. It is really extraordinary, but as far as I have been able to learn, no one has ever made a study of the normal life of the cutworm. And I failed to find any clue as to what they are eating regularly.

Cutworm damage has been found to be most severe when a large number have been bred on weeds or on a cover crop, and then this source of food has been destroyed by cultivation. In such a case the cutworms turn to any food available and may do great damage. Various methods have been proposed to reduce their numbers, including poisons. But I am not ready to admit that such a condition ever arises when sound organic cultural methods are used. The problem for us is rather to see that they are supplied with an ample amount of their natural preferred food, so that they will not bother our plants. If this is done, we may find that cutworms are one of the beneficial insects, turning the material they eat into cutworm manure and then into humus. But we cannot apply this method until we learn what their preferred food is.

Short Period Artificial Illumination is Sufficient

By William H. Eyster, Ph.D.

ALTHOUGH it is generally known today that the time of flowering is largely determined by daylight, recently a new discovery has been made in this relationship, which doubtless will have great practical application. According to this discovery, one can regulate at will the time of flowering by exposing a plant to artificial light for only a minute or two at the middle of the period of darkness. If it is desired to prevent the blooming of a short-day plant in winter (for example, to get the plant to make more vegetative growth), the length of day has been increased in that the natural light of each day has been supplemented with several hours of artificial light. With a continuous illumination of from 13 to 15 hours per day, the flowering of almost all short-day plants can be inhibited.

Now it has been discovered that the same results can be obtained by exposing the plants to as short a time as from one to two minutes in the middle of the dark period. Accordingly, instead of increasing the short winter day by artificial illumination for from 3 to 6 hours, only from one to two minutes exposure to artificial light at midnight is necessary. The intensity of light necessary is very small, as from 50 to 100 luxes are sufficient. (A lux is equal to 0.0929 foot-candles).

The best results are produced by red-orange and violet colored lights, while green and blue-green lights are

almost without effect. Naturally an illumination of two minutes about midnight is far cheaper than illuminating the plants from sundown until 9 or 11 o'clock p. m., and at the same time the intensity of the light is no greater than that used for continuous illumination.

Long-day plants are treated in the same way as short-day plants. In order to bring long-day plants into bloom in the winter, the practice has been to illuminate the plants artificially from sundown until 10 or 11 o'clock at night. In this case also it is necessary to interrupt the darkness with artificial light for only two minutes, and preferably at midnight. Also here orange-red and violet lights give the best results. It is well known that the length of the dark period is of very great importance as regards the time of flowering. But one could hardly expect that an interruption of only two minutes has such a tremendous effect on the tin e of flowering.

How does one explain the effects of the dark- and light-periods on the plants? On the basis of the foregoing facts, the working hypothesis of Borthwick, Parker and Hendricks seems to be the most plausible. The anlage (first-formed cells) of the flowers are regulated by the flower-producing hormone called *Florigen*. This hormone is produced in the green leaf. In a reaction produced by light (photochemical reaction) the formation of a very light-sensitive hormone or intermediate hormone product in the leaf can be interrupted.

The flower-producing hormone must be very highly concentrated in order to be able to form a flower anlage. Then also a still higher concentration can limit or even inhibit flower anlages.

A report by Borthwick, Parker and Hendricks on their investigation on the effect of the short period or the interruption of the dark period, and the working hypothesis mentioned above are given in the book by Murneek and Whyte, "Vernalisation and Photoperiodismen."

Growing Geraniums

FOR MASS EFFECT

By BETTY OTTER EVANS

WHEN most people think of geraniums they visualize a few plants growing in pots on a windowsill, indoors, where of course they will bloom if conditions suit them. However, few realize that geraniums are lovely outdoors, massed in beds, as well as growing in large pots, tubs or even big baskets. At the end of summer they need not be discarded or allowed to freeze for they can easily be kept over the winter in the cellar, attic, etc., and set out each spring.

So we will discuss the way to start our own bed. As soon as outdoor conditions are suitable for setting out tomatoes, they are all right for geraniums, although geraniums do not freeze as easily as tomato plants.

First we must decide where our geranium bed will be located. Any shape or size will do. Unless your bed is already rectangular, do try a

circular one. If you have evergreens in front of your house, dig your bed in a curved formation and plant in front of the evergreens. The green foliage will be lovely as a background for the bright colored flowers.

When buying your first set of plants, you can either get very small potted plants, rooted cuttings, or large plants, already in flower. Incidentally, you can even raise them yourself by sowing seed, but you would have to wait until winter for flowers.

Perhaps you have had a few tulips or daffodils. Their flowers are gone, but the foliage is still green. Since we dare not cut off the foliage the small geranium plants may be planted between the individual bulbs or between the rows of bulbs.

If you use larger plants you can cut them back to induce bushiness. By using the tops (5-6 inches long) which you cut off, you can have several brand new plants in a few weeks or less. Just plant these pieces in pans of sand or sand and peat moss. Place the pans in a bright place, out of direct sunlight; on the north side of your house is ideal. Before you know it you'll have new little plants to put out. Besides this, the old plant will send out two stalks where only one was before. On the terminal end of each stalk will be a flower cluster.

For location, I think anything but a direct northern exposure will do. Although geraniums are sun loving flowers they do very well with partial shade in the hot summertime I've even had large potted plants bloom on the north side of the house without any sun to speak of.

If you have just a few large potted plants that you wish to set out, leave them in their pots or shift them into larger pots and sink them up to their rims in the ground. This insures more even and constant moisture. Naturally you will have to water them frequently on sunny days. Their roots, being constricted in pots, cannot pick up moisture from the ground. To help preserve the moisture a mulch is wonderful Use a heavy layer of leaves, grass clippings, peat moss, etc. You will be surprised how damp the soil remains underneath.

If you have geraniums in window boxes, the mulch helps immensely. If you are using large pots or even growing geranium trees for accent, the mulch is a must, because they will dry out before you turn around. Try putting a large plant on each side of your front door. If your house is red brick, see if you can secure white ones. These are hard to find, but all white flowers are lovely on a hot summer day. If you have a fence, why not place one on each side of the gate? If placed in back of a fence, they look grand peeping up over the top of the fence. Perhaps you have a tall spindly plant you can use for this purpose. You may be able to purchase a plant like this, without any flowers on it, from your florist or nurseryman for a reasonable price. You will find that, with the conditions it likes, the plant will soon recuperate and buds will appear.

I must mention one other type of geranium lovely for summer work. The ivy geraniums are not so well known, but are beautiful plants, satisfactory in either sun or shade. Though they are slow in starting, the second year the stalks may grow several feet and have the prettiest flowers you ever saw. Everyone has seen pictures of these growing in California in hanging pots.

Now we will list a few color combinations and ideas for massing in beds. If you wish to save some expense, try them in combination with easy to grow annuals. With perennials, too, they look well.

Back row
Azure blue crego asters
Middle row
Pink geraniums
Front row
Low blue ageratum

Back row
Red geraniums
Middle row
White geraniums
Front row
White sweet allysum

Back row
White geraniums
Middle row
Rose petunias
Front row
Pink petunias

Back row
Rose geraniums
Middle row
Blue petunias
Front row
White sweet allysum

Back row
Red geraniums
Middle row
Yellow azaleamums
Front row
Lavender zinnias

Back row
Azure blue crego asters
Middle row
Pink geraniums
Front row
Violet sweet allysum

Back row
Red geraniums
Middle row
Marigold - yellow
Front row
Dwarf marigold

Back row
Orange giant marigolds
Middle row
Red geraniums
Front row
Nasturtiums

In closing, I will list the names of a few reliable varieties in three color classes. However, when you buy from your local florist or nurseryman, they may only be called white, pink or red. *Pink or rose class*— Picardy (salmon pink), Pink Fiat, Salmon Supreme, Mrs. Lawrence, Apple Blossom, Mrs. Nelson Eddy; *Red*— Red Fiat, Radio Red, Pride of Camden, Olympic Red; *White*— Madonna, Mrs. Buchner, Springfield White; *Ivy Geraniums*—Galilee (rose), Mrs. Banks (white with lilac), Charles Turner (rose pink), Bridesmaid (orchid). Places to buy plants. Bongarzonne Bros., Rex. D. Pearce, Wilson Bros., Salzer's and Howard's in California.

Window Gardening

A Form of Gardening in Which all May Participate

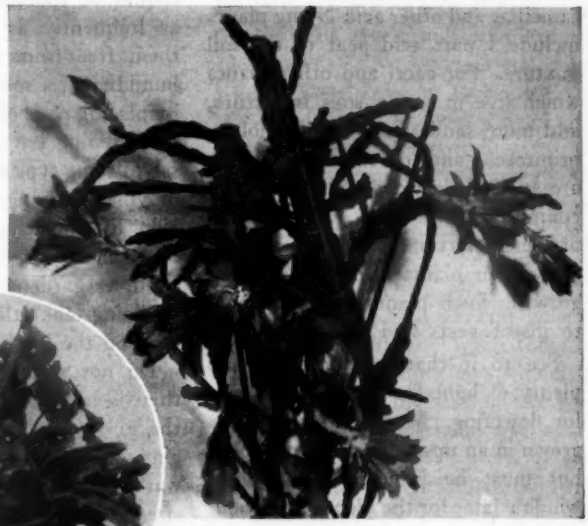
By WILLIAM H. EYSTER, Ph.D.

Tuberous Begonia

WINDOW gardening is one type of gardening that may be enjoyed by all. It matters not whether you live in the country where you can invite the choice plants of your summer garden indoors to spend the winter season in your windows or in an apartment high above the street in a metropolis. The window box or the pot filled with soil represents your "garden bed."

Select Window-garden Plants as You Would Guests or Employees

In the average modern house the atmosphere has the temperature and humidity of deserts. Such an environment is suitable only for growing cacti and other succulent plants. In many homes the temperature is so high and the humidity so low that conditions are unfavorable to the health of the occupants. By making conditions favorable to the healthful growth of house plants other than cacti and succulents, you will be making your home a far more healthful place in which to live.



Epiphyllum

African Violet

In planning a window garden, make a careful survey of your windows and sun porches to determine day and night temperatures, amount and kind of light including direct sunlight, source and kind of heat, and presence or absence of air currents. In selecting plants for your window garden you will doubtless give first consideration to those which you particularly like. But before you definitely decide to include any particular kind of plant, make sure that you can provide it with the conditions it requires for vigorous growth and profuse flowering. Study its suitability for a place in a particular window much as you would consider the qualifications of an employee. Some plants will give a good account of themselves in a south window but will fail miserably in a window having a northern exposure. Some plants will do well if they receive only two hours' sunlight per day, while still others are happy in a north window where they get no direct sunlight. Before accepting a plant for your window garden, learn its requirements as to light, humidity, temperature, soil, sensitivity to any fumes that may be present in the house, and other conditions that may affect its growth and well being. Visit your florist and become acquainted with plants which seem to have the qualifications required for your several windows. Select your plants intelligently and the chances of a successful

Primrose

and beautiful window garden will be greatly enhanced.

General Requirements of Window Plants

The first requirement of a plant is a suitable soil. A soil that is suitable for most plants consists of a mixture of 2 parts good garden loam, 1 part compost (or leafmold), and 1 part clean sharp sand. This mixture may be enriched by adding bonemeal at the rate of one teaspoon for a 5-inch pot, more for larger pots and less for smaller ones. For azaleas, camellias and other acid-loving plants include 1 part acid peat to the soil mixture. For cacti and other plants which live in sandy soils in nature, add more sand. For African violets, primroses, and other plants which are at home in woodlands, add more compost. Do not use highly soluble artificial fertilizers as they will cause your plants to make abnormal growth. Such plants are vulnerable to insect pests and diseases.

See to it that your plants have plenty of light for growing, and sun for flowering. Many plants may be grown in an up-stairs, unheated room but must be brought to a sunny window later for the blooming period. Also plants may be used on the dining table or the buffet for decorative purposes but should be moved to the window for the light they need. Remember that a green plant is a solar machine, and can live only by utilizing energy in the form of light. Some plants, as the wax begonia, require little or no direct sunlight for blooming while others, as the geranium (pelargonium) require all the sunlight a south window can afford.

Keep your plants cool, as the florist does. You will be surprised to learn that most plants definitely require a temperature far below that of the average home. The Christmas cherry thrives at 55 degrees F. and dies at 70 degrees F. Even the southern gardenia is happier at 60 degrees F. than at 70 degrees F. Plants grow better when the night temperature is from 5 to 10 degrees F. lower than day temperatures as occurs in nature after the sun sets. In extremely cold weather window plants should be protected by drawing the curtains or shades or by placing paper between the plants and the window panes.

With few exceptions, house plants require a moist atmosphere. Make every effort to keep the atmosphere in the rooms moist. It will be as beneficial to you as to your plants. The plants should be set in a tub and syringed with water once a week, or oftener for some plants. The leaves of foliage plants, as rubber plant, should be sponged with fresh water as frequently as necessary to keep them free from dust. The general humidity of a room can be improved by placing pans of water on radiators, or fastening on the radiators themselves some type of humidifier. Vases of vines growing in water will also help to moisten the air. Much of the success of our grandmothers' window gardens was due to the steaming teakettle which was always kept on the kitchen stove.

Do not water the plants oftener than is necessary. It is best to feel the soil, and water only when it begins to appear dry. The frequency of watering depends upon the kind and size of pot, kind of soil and drainage of the pot, and the kind of plant. It is better to water generously when the plant needs water than to water too frequently.

Plants need fresh air, but cannot stand currents of cold air. It is well to air the house daily, but care must be taken that cold air does not blow directly over the plants. Open a window or door in an adjoining room. Always avoid chills, draughts, and winds. Do not set plants outdoors for "refreshing rains" or for any other reason in cold weather.

Potting House Plants

For most plants it is best to use unglazed pots, as they admit oxygen through the wall which is so necessary for the roots growing in the soil. First place a piece of broken flower pot or a flat pebble over the drainage hole in the bottom of the pot. Then put into the pot from one to two inches of coarse material to insure adequate drainage, and finally some unsifted soil sufficient, when pressed down with the thumbs, to leave room for the root system of the plant. Now set the plant in the pot, with roots spread out, and fill soil carefully over and around the roots. A pot label may be used for working the soil down around the side of the pot. The soil may be settled by gently tapping the bottom of the pot on the potting bench occasionally. Care should be taken that the plant is properly centered, that the soil has been properly firmed around the root system, and that the soil level, when finished, is from one-half to one inch below the level of the top edge of the pot.

When plants become root-bound, they should be repotted in a pot that is one-size larger. In repotting grasp the plant in one hand, the pot in the other and tap the inverted pot gently on the edge of the bench and the contents of the pot will come out as a ball of earth. In the pot-bound plants, the earth is completely enveloped by the roots.

Light Requirements of Window Plants

As a rule flowering plants are more difficult to grow satisfactorily in the window garden than foliage plants. It is only in full sunlight that flowering plants come into their own. Many window gardeners grow flowering plants in windows with little or no direct sunlight, but move them from window to window and finally into south windows where they burst into profuse flowering.

Light But No Sunlight

Many foliage plants thrive in windows without direct sunlight. The following plants will give a good account of themselves under such light conditions: Aloe, Baby's Tears, Boston Fern, Chinese Evergreen (*Aglaonema*), Chinese rubber plant (*Crassula arborescens*), English ivy, grape ivy,

(*Continued on page 54*)

Dr. John Clayton Gifford

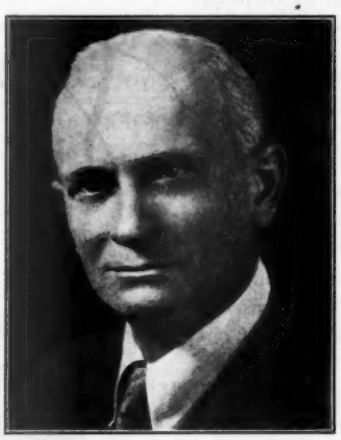
Champion Organic Gardener in the Tropics

By MARTHA PARKER

WITH the death of Dr. John Clayton Gifford on June 25th, 1949, *Organic Gardening* lost one of its stanchest advocates in South Florida. A Professor of Tropical Forestry at the University of Miami and well known lecturer, he was in the truest sense of the word the champion of organic gardening in the Tropics.*** In twenty-five years of close association with Dr. Gifford, I have never known him to use one pound of commercial fertilizer or one gallon of insecticide, yet each year his mango, avocado, grapefruit, lime, coconut, mulberry, guava, sea-grape, and various other tropical fruit trees are heavy with fruit including heavy yields from such mammoth herbs as the banana and papaya.

Undoubtedly Dr. Gifford's theories as regards organic gardening were formulated as a result of his forestry studies in Germany. At that time the first forestry school in the United States at Cornell University, Ithaca, N. Y., had died an untimely and premature death for political reasons. However, the forestry schools and practice of forestry as a profession were well established and valued institutions in the Old World. This was especially true in Germany where with characteristic systematicness once a tree was cut, every twig and branch was used and another tree was planted in its place. I understand that to this day it is against the law to cut down a tree in Germany without permission from local authorities in charge. From this came an abhorrence of waste. Probably it was through the utilization of waste and the study of growth under forest conditions, that Dr. Gifford devised his own system of organic gardening.

Forty years ago Dr. Gifford moved to a sparsely settled area between Miami and Coconut Grove. From rock taken from the land he built a 15 room house which indicates the extent of the rocky character of the land. With the utilization of the rock an uneven terrain of pot-holes remained. However, in a few months time these pot-holes were filled. All household garbage was buried and if immediate burying was not possible it was burned in a wire incinerator and later found its way in the form of ashes to the holes. In these holes he planted his



fruit trees. The few trees on the land originally were undisturbed in order to provide shade for the fruit trees that were planted. It must be remembered that in the Tropics young plants must be protected from the sun for rapid growth. Also much more plant food must be available to a young and growing tree than an older tree. Plant food can be withheld at the time of bloom to force copious bloom formation and then once the bloom has set, plant food is applied again to insure large fruit. However young trees are "shade demanders" in the sense that they grow much better protected. Once the fruit trees are large and hardy the less valuable "nurse" trees can be removed. No part of these trees went to the trash collection agency. The leaves and twigs were piled around the bases of trees and the trunk and larger branches were corded for fire-wood and eventually in the form of ashes went back to the land. When the lawn was mowed the grass was never raked up but left in fine particles dispersed on the surface to return humus to the soil. Within a very few years a rich top soil covered the earth. Eventually when the surrounding land was built-up with neighbors the process of burning the garbage from the household was abandoned yet all mowing, pruning, and thinning continued to add to the little compost heaps around every tree.

Some might think that this system would result in a very unattractive yard. Actually the little compost heaps looked rather neat and one's attention was always drawn to the masses of fruit and brilliant tropical flowers or to the healthful character of the vegetation and not to the bases of the trees. In a large yard the inverted burial mounds were well dispersed and covered quickly with a nitrogen-fixing legume that served as a quick ground cover and soil improver. In a week's time scars on the land were gone as if by magic.

Until a city ordinance prohibited chickens Dr. Gifford kept bantams. These chickens were never eaten as they were very small. They roosted in trees and kept down all grasshoppers and similar pests and made a richer humus. Their eggs were collected but they were more like bird's

(*Continued on page 53*)

(*** Taken from Webster to mean; pertaining to living organisms (in this case plants) and a system of organs having systematic co-ordination)

WEATHER WISDOM

Folk W

By JULIE BEDIER

HAS any "weatherwise" farmer or gardener ever kept a year's record of his own weather predictions, together with those of the local weather bureau, and an honest account of the percentage of accuracy found in both methods? That record would make a highly interesting and valuable addition to garden lore, particularly if accompanied by a description of our weatherwise friend's methods of predicting rain and sunshine. I have an idea the "old timer" would come out considerably better than the scientific weather bureau with all its balloons and isotherms. Who has not sat reading yesterday's paper while rain poured down in an all day torrent outside—and noticed the paper's weather report "tomorrow clear and warmer"?

It is a great asset to the ordinary gardener to be weatherwise. He may have a rheumatic joint that tells him, "Get your tomatoes set out today—we're going to have a nice long rain that will settle them just right." He knows that a good mulch after that will fix them up for the rest of the season. No watering, no hoeing. Just wait and pick your tomatoes. But if he sets out the young plants at the beginning of a two week drought, what a difference! Watering and worrying will wear him down.

An ability to forecast the weather is surely one of the requisites for a green thumb. Here folk lore is a valuable help. Often we read something like this: "Superstitions give way to modern science. Up-to-date devices to forecast weather now take the place of folk fables." Such smugness makes me smile. Our ancestors for thousands of years have noted clouds and winds, trees and insects, and these same ancestors were able to tell whether or not the rain was falling when it was, actually, falling. They lived close to nature and kept their eyes open. Their little axioms and sayings about the weather had experience behind them.

"Mackerel sky, not three days dry."

The sky covered with regular scale-like rows of small clouds is one of the surest signs of rain. It doesn't always come at once, but often it does, within three days.

"When the clouds look as though they were scratched
by a hen
You'd better get your live-stock in."

This may be another way of saying the same thing, applied to winter storms as well as to summer rain.

An early morning shower is often followed by a clear day—hence:

"Rain before seven,
Clear before eleven."

Often a shower is followed by a cessation of rain.

Ws of Predicting Weather and Gardening

After a few hours the storm may begin again and go on for a day or two. On the other hand it may clear up. How to tell which will happen? If bubbles form on puddles and stay a long time without breaking, the storm will last. Likewise if drops of water hang a long time on wires and leaves, look for more rain. If you can get transplanting done during one of those lulls between downpours, you are wise and lucky. That is, if you have good spongy humus-filled soil that will not cake if handled when wet.

It is a sign of rain when ants leave their front doors open. If you notice the little holes as you walk along a path or hard clay road, look for rain. Whether they have rheumatic joints or not, the ants know the weather in advance.

"When no dew is on the grass
Rain will surely come to pass."

When an early morning walk through the grass leaves you without a drop of moisture on your shoes, there is likely to be rain during the day. This I have found to be a fairly accurate rule, but, like others, not one hundred percent infallible.

"A sky of deep unclouded blue
Means rain in a day or two."

"Evening gray and morning red
Send the traveler wet to bed."

"A rainbow at morning, the Shepherd's warning,
A rainbow at night, the Shepherd's delight."

These too I have found useful but not infallible. It is a good idea to look for a combination of signs. And it seems that during a summer drought, all signs fail. Fall or spring, rain can be expected after a frost, and after a hard frost, look for a big rain.

Some weather-wise proverbs came into being in certain sections and may or may not be of use elsewhere. For instance the following jingle is well known in parts of New England:

"The west wind brings wet weather,
The east wind cold and wet together.
The south wind always brings the rain,
The north wind blows it back again."

When the breezes blow the tree leaves over, so that the under sides show, that is another sign of imminent rain. A ring around the moon means rain. Rabbits running out in the open indicate clear weather, while rain may be expected if you see snails crawling out. A storm is coming if pigs pick up sticks in their mouths and run here and there, probably with some ancient wild-piggish instinct for building nests at such a time.

Usually rain or snow can be expected before twenty-four hours if low ragged clouds are seen scudding in from the east or south. Generally the higher the clouds, the clearer the weather will be. Those clear days with crystalline air, when sounds carry long distances, mean a bad storm within two or three days. A blackish haze on the horizon on a hot morning can mean a thunderstorm. A clear sunrise may precede rain or snow if the sky clouds over by ten in the morning. A clear sunset as a rule means it will be fair for several days, especially if there is a northwest wind.

After a storm, when the weather is clear and cool, the second night is always the colder. This is useful to keep in mind in spring, if young plants need protection.

Our English ancestors have gathered an immense amount of weather-wise data. Whether or not all of their sayings hold in America, surely some of them will be useful to us. Consider the following nursery rhyme:

"When the wind is in the East,
'Tis good for neither man nor beast;
When the wind is in the North,
The skilful fisher goes not forth;
When the wind is in the South,
It blows the bait in the fishes' mouth;
When the wind is in the West,
Then 'tis at the very best."

Compare these sayings with the verse from New England, and remember that the Atlantic Ocean lies west of England, east of New England—and that according to American folk lore, rain can be expected when fish jump in the water—and where are we?

More old English signs of rain:—The soot falls down, the chairs and tables crack, and the ducks quack loudly; the pigs snort and run about restlessly, the cattle and horses are tortured by flies, the cricket sings and the swallow flies low. The fish rise and snap up the low-flying insects, and the toads are seen at dusk, hopping out in the open. The cat "washes her face" and the dog eats grass. The distant hills seem to be close at hand. The fireflies are bright and plentiful, and the moon hidden in haloes. The wind whirls in dusty eddies, or the air is unusually cold and still. Spiders peer out from their cobwebby doors, the birds' songs are still, and the clouds look black.

So much for signs of rain in England. Some of them tally nicely with our own weather wisdom, others may need to be checked over a period of time before being accepted here.

According to the old Farmers' and Mechanics' Manual of 1874, the weather during a period of seven days can be predicted from the time of the moon's change. If the change of the moon to new, first quarter, full, or last quarter, takes place in the middle of the night, between midnight and 2 A.M., the weather will be fair in summer, clear and frosty in winter unless the wind is southerly. If the change comes between 2 A.M. and 8 A.M., the weather will be cold and stormy with rain or snow, depending on the season. Changes in the moon between 8 A.M. and 10 A.M. mean changeable weather. From 10 A.M. to noon, showers. Noon to 2 P.M., very rainy in summer, snow or rain in winter. 2 P.M. to 4 P.M., changeable, or fair and mild; 4 P.M. to 6 P.M., fair; 6 to 10 P.M., if the northwest wind blows, fair; rain or snow if the wind is from the south. If the moon changes between 10 P.M. and midnight, weather during the next seven days will be fair in summer, clear and frosty in winter. In general, moon changes near to midday mean wet weather, changes near to midnight, clear weather. Of course an almanac must be consulted to find out at what hour the moon's change comes.

The Japanese have a saying that the weather runs in cycles of seven days:—"Three cold, four hot, or three hot, four cold."

That is, three cool days will be followed by four warm ones, and three warm days by four cool ones. Just how this works out mathematically I could never tell; an extra day of some kind of weather must come in somewhere, sometime. I have noticed, however, that the rule is a pretty good one in Asia, and that it often holds good in our country, too. The Chinese foretell the coming of warm weather in spring, as so many days (depending on the locality) from the old Chinese New Year. Since this holiday, like our Easter, depends on the lunar calendar, the moon tells the tale there, too. As for the first frost of Autumn, I suppose everybody in America knows that it comes six weeks after the first katydid's call.

The Soil and Health Foundation

CONTRIBUTIONS to the Soil and Health Foundation may be legally deducted from your income on your tax return. The Foundation has been approved for such purpose by the Bureau of Internal Revenue. During the month of November, 1949 several nice contributions were received, one for $200.00 and several of $100.00 each. Some of the moneys are being used for building special kinds of plant-growing plots, experiments will be extensively engaged in 1950. An open invitation is extended to the general public to come to the experimental farm near Emmaus next season to see them.

The Soil and Health Foundation is a non-profit organization formed to engage in research showing the connection between the health of the soil and the health of people. Contributions in any amount welcome. The payment of any amount makes you a member.

SOIL AND HEALTH FOUNDATION
46 SOUTH WEST ST.
ALLENTOWN, PA.

How to Grow Holly

By EARL DILATUSH, Holly Specialist

AMERICAN Holly is coming into its own. More Holly has been planted during the last five years than during the previous fifty. Holly has started on an era of almost unbelievable expansion and during the next decade will take its rightful place high in American horticulture.

People naturally like Holly, but many have had indifferent success with it. Down through the ages various reasons have been advanced for this, while in fact, almost all failures can be traced to soil conditions. Although Hollies thrive in lots of places where people little dream they will live, they are very cranky about the ground they are planted in and often die rather than try to get used to man-made soil.

However, Hollies are easier to grow than many of our so-called hardy evergreens and require much less thought and care after planting. Folks with little experience in growing plants often have better success with Hollies than those who have spent years in perfecting their gardens.

You see, the very science of growing the other things in our gardens: the knowledge of fertilizers, their analysis, etc., the feeling that clean cultivation and the almost daily fussing with them will bring the results we are after is all but lost on Hollies.

The stories friends will tell you about the hardships of growing Hollies are legion. Perhaps no American tree has been so slandered. These tales are not malicious either, for, as I have said, folks just naturally love Holly, but in trying to grow it like the rest of their trees they have failed miserably.

People are so used to figuring out location—sun or shade—type of soil, kind of fertilizer, etc., before planting a tree that they wonder when I advise only lots of Oak Leafmold and water when planting Hollies. Remember, Hollies are wild and cannot be tamed or domesticated, so, success with them is obtained only if one plants with a single thought in mind, making things natural for them.

Luckily this is easily accomplished. Sit down and think a minute and you will easily see that it is ecological to use Nature's own fertilizer on Holly which responds so wonderfully to this soil treatment. Somehow, though, the hardest thing about growing Holly, for some people, is the very ease of it. They are not satisfied with so simple a treatment. Potash from Germany, Nitrate of Soda from Chile, Phosphate from South Carolina or some well known fertilizer mixture that is nationally advertised sounds so much more attractive than plain rotted leaves and wood from their own woods.

On many estates the only cost of leafmold and stump dirt (rotted wood) is that of gathering, yet it is worth more for growing Holly than any or all chemical fertilizers. The above is not an idle statement, but is backed up by over forty years of selling and planting Hollies.

I wonder if I may take the liberty of telling a little about my work in Hollies. I have not always known the "secret" of growing Hollies easily with Oak Leafmold, nor did I stumble on it just by chance. I learned the hard way, you see. I started raising Holly as a hobby and now it is the biggest business on the farm.

During my younger days I planted Holly after Holly with little success. Father was a good farmer, but his real love was for fertilizer and we had a factory right on the farm. The results of the generous use of our product on the farm crops helped no

A giant Holly Tree grown with Leaf Mold

little to sell our fertilizer and I shared Father's belief that chemical fertilizers would help all crops. Their use, however, worked adversely on Holly.

My poor luck with Hollies did not discourage me but simply made me more determined to grow them. I tried everything I could think of. Finally I dug a few plants and brought home with them a lot of the Oak Leafmold in which they were growing. This time I used no soil or fertilizer but just dug large holes and plunged the plants in the leafmold. It seems strange now that it took so many years to find this simple solution to my problem.

I now have acres of Holly and sell more large specimen American Hollies than all the other nurseries in America combined. And each year I am convinced more firmly that Oak Leafmold is the best medium for planting Holly. Not only on my own Holly Farm is this apparent, but results reported by customers all over the country prove even more strikingly the value of using Oak Leafmold.

Years ago I began planting Hollies in the mountains and in the far north where none had ever been grown. Now, I ship truckloads to our northern states and some to Canada and Nova Scotia. My first planting in the Catskill mountains might interest you. The owner of a 1300 acre estate wanted somethin different to show friends and bough Holly. However, she drove a rath hard bargain. With a small depos I had to agree to wait a year for th balance which would be paid onl if the Hollies looked good and wer thriving. And all this in a mountai neighborhood where everyone sai Hollies could not be grown.

Naturally I insisted on full author ity in regard to methods of plantin and over-ruled the owner's wish tha we use commercial fertilizers. Ton and tons of real Oak Leafmold la in the woods surrounding the hom but had remained untouched becaus it was thought valueless. The owner gardener and even the landscap architect protested when I ordere the Hollies planted with over a to of this material around the roots o each tree. After more than fifteen years with nothing added thes Hollies today are just about the fines specimens to be found anywhere. Th prize of the lot is "Merry Christmas," one of my named Hollies from whic I root several hundred cuttings an nually.

Let me tell you something interesting about the use of Oak Leafmold on old established Hollies. Every year I get letters from folks alon the coast that read in part, "I hav wonderful old Hollies in my yar that are dying, what can I do?" I know nine times out of ten just wha the trouble is before I visit thes people. A new house has been buil in a grove of Hollies or the land i question has been "improved." I both instances the turf and leafmol that has kept these hollies growin has been removed and thrown away New soil has been added with th addition of lime and fertilizer, an grass sown to make a lawn. Onl one thing can be done to correct th trouble and that is to give up th thoughts of grass under these bi trees and place over their roots again life-giving Oak Leafmold. This never fails to bring the Hollies back t beautiful trees again and proves my feeling that nothing in the world helps Hollies like Oak Leafmold.

Gathering Holly for the Christmas Season

January Flower Arrangement

When blooms are scarce we have an opportunity to work design rather than color in our arrangements for the cold months of the year. Dried flowers are in great demand. An amazing amount of subtle colors are discovered in dried flowers, seed-pods, and just plain weeds. Restrained tinting was very successfully achieved with the pods in shades of brown.

National Dahlia Show (1949)
Hotel Statler,

Mrs. Ruth Conover
Oradell, New Jersey

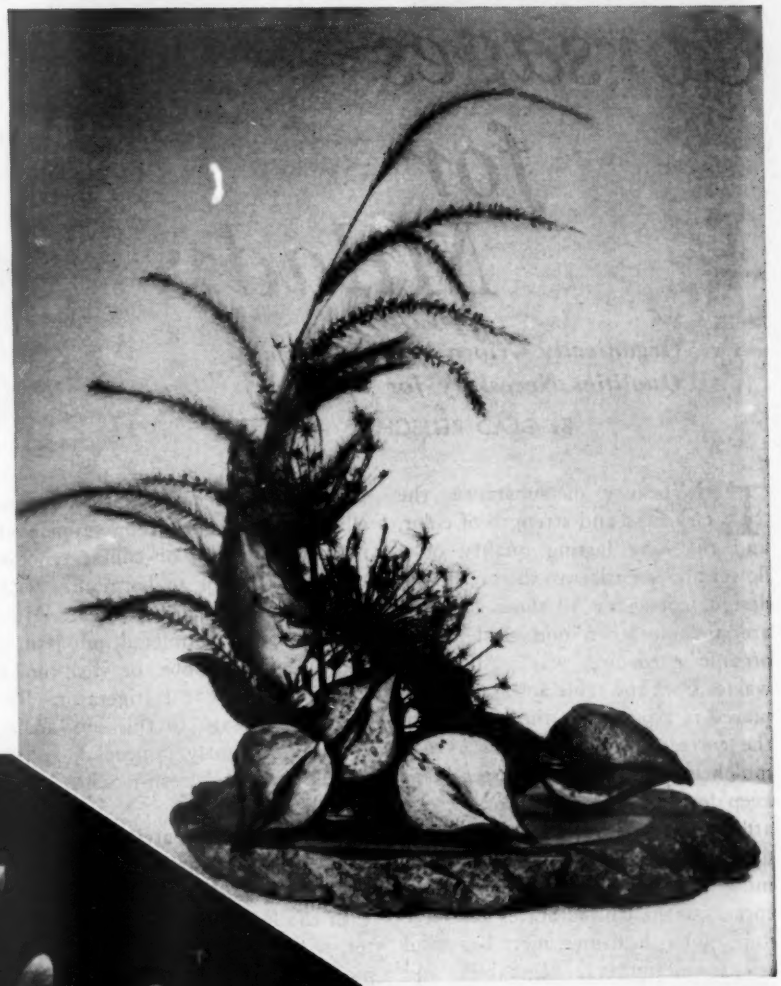


Photo by Boutrelle

Rhododendron leaves are the northern substitute for the magnificent magnolia leaves of the south. They are lasting, not quite as lush as the magnolia, but a good substitute. Bayberries last indefinitely, making a practical combination in one of Grandma's stone china sugar bowls.

Mrs. J. I. Rodale,
Allentown Garden Club

Photo by Clewell

Corsages for Milady

Organically Grown Flowers Have Qualities Necessary for Corsages

By GLAD REUSCH

A smart voguish tailored corsage of shattered Carnations in yellows and greens is a daytime favorite.

MRS. E. S. HALE
(photo by James N. Keen)

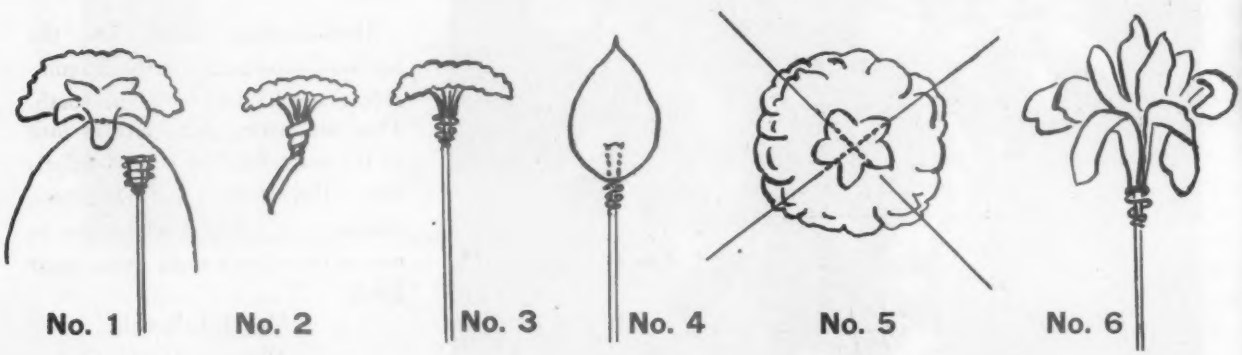
THE beauty of substance, the clearness and strength of color, and the long lasting quality of a flower are essentials to the artist who designs corsages. All these elements are possible when one gardens the organic gardening way. All green wastes from the table and garden are placed in a pit where they mellow to the correct composted soil. A rock mulch under shrubs and trees helps keep fertility and moisture, thereby attracting earthworms to help condition the soil. Weeding is at a minimum. We have lived in all the four corners of the United States and have found finer, healthier, more beautiful results in flowers, vegetables and fruits where these have been grown the organic gardening way.

The corsage hobby begins after you have succeeded in growing flowers well, for each flower is on display when it is placed in a corsage and must look its best for the admiring public.

All flowers will hold up better if picked in the evening and conditioned by placing in deep water over night. You will, of course, choose the correct color to harmonize with the costume you plan to wear. After the corsage is completed, put it in a tightly covered box or dish on a lower shelf in the refrigerator. Return the corsage to this box again, sprinkling slightly if needed, and it will be crisp and fresh-looking for its next wearing.

Three large, delicately fringed yellow Carnations are chosen for the first corsage, a circular tailored type, with the large Carnation in the center, wired as for No. 1. The two remaining Carnations are divided into thirds and fourths, called "shattering." Each separate group of petals is taped and wired, see Nos. 2 and 3, to form a miniature flower, and these tiny flowers are arranged symmetrically around the central blossom. Four variegated Euonymous leaves with smooth contrasting texture, are tucked under the central flower. Additional lush, glossy leaves are added to deepen the outer edge. (See No. 4.) The chartreuse marking in the leaf is picked up in the yellow-green color of the satin ribbon, manifesting a blue-green lining.

The aristocratic character of white Camellias with their perfection of form, lends itself to the use of an evening corsage, particularly when worn against a black costume or dark hair. There is a distinction and style in the use of pointed buds, half open and full blossoms, especially where form and texture vary as is true with the combined use of Churchwell White, Alba Plena and Purity in the Camellia crescent corsage. Camellias



Striking white Camellias grace a black frock or serve as a distinctive hair ornament.

MRS. CARRINGTON J. MASTERS
(photo by James N. Keen)

Blue Iris enriched with the silver-sheened foliage bent to form a natural bow, create an aura of loveliness.

MRS. EDWIN L. THOMAS
(photo by James N. Keen)

Mottled and splashed delicacy highlight three hybrid Azaleas in Salmon-pink with white edgings.

MISS NETTIE CARLSON
(photo by Broadway Portrait Studio)

are wired by pushing a wire through the lower part of the blossom and crossing this with another wire at right angles. (See No. 5.) Pull all four wires down to form the flexible stem and tape with white. The surplus wire stems are twisted into scrolls. If Camellias are rare or scarce, the blossom may be twisted from the stem, thus preserving the little pointed leaf bud which represents next year's growth.

It is a unique corsage indeed when leaves play an important role in the design. Here the inside silver sheen of the Iris leaf and calyx heightens the beauty of a fascinating bow. Blue Dutch Iris are in top favor and often substitute for Orchids. If buds are not available, create a small pointed form by putting two or three petals or sepals together. This lightens the appearance of the corsage and gives linear expression to the design. A leaf twisted into a point will create a similar light note. Iris are among the simplest forms to wire. Merely twist a wire around the shortened stem and tape. (See No. 6.)

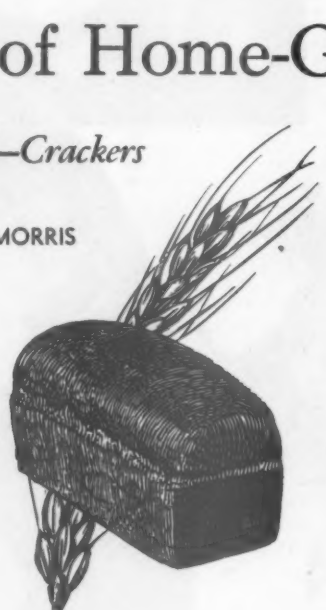
High favorites for a corsage of intrinsic and delicate beauty are a trio of three Vervaneana Azaleas, pleasantly splashed with color of a deeper harmonizing shade. Here, particularly, a well-grown flower is of utmost importance. A rich acid compost of oak leaves for planting and mulching is most beneficial, because the blossom is naturally fragile, and well grown plants will hold up much better. Old rotted wood from an evergreen stump, fallen log, or redwood dust, add just the correct acid content to the compost. Camellias flourish under these acid conditions, too. The Azaleas are most securely handled for corsages by bringing two hairpin wires down through the center of the blossoms, and wrapping the wired stems with floratape. Five extra wires are wrapped with floratape and then rolled into circles. These, in addition to their decorative quality, help to balance the corsage and keep it from rolling. A silver lace openwork ribbon, deftly tied into a bow, provides just the correct finishing touch.

The corsage hobby by now can be your hobby. Secure a good book of instruction and a kit, and surprise your friends with the artistry of your craft as you display your well grown flowers and present really professional-looking corsages to your admiring friends.

Three Uses of Home-Ground Flour

Bread—Cereal—Crackers

By FLOYD W. MORRIS



I MYSELF have baked bread, and that with flour from wholewheat grains ground in a mill which originally had served for the grinding of coffee in one of those long-ago-remembered "general stores." The coffee grinder had been sold at an auction. I paid a dollar for it—but how I hooked it up to a motor is another story. Suffice to say, I use a one-third horse power motor with V-belt running to a flat faced pulley with a 13 inch diameter, set on the one inch shaft of the mill. My mill does a good job of grinding the wheat, but I have to run each quantity through five times. Enough of that; I want to write about what we've made with the ground wheat.

I have long felt that "store bread" made of devitalized white flour is poor food indeed when compared to that bread of a former day baked from home-ground or neighboring mill-ground flour. I have been a subscriber to an exceptionally interesting English publication edited by Sir Albert Howard and called "Soil and Health." In the spring issue, 1946, there was a description in scant detail of the process of bread-making from whole wheat, organically grown, and ground in a small mill. The story intrigued me. I could not rest until I had purchased some good wheat of a neighboring farmer and ground it in my mill. The flour came through beautifully. It had a delicious smell. Even my wife admitted to that after the first sceptical sniff. I could see that she was becoming interested. Following the scanty recipe from "Soil and Health," I measured out by weight what was to make the dough for bread.

Since it was my first attempt, I halved the recipe so that if it should be a failure there wouldn't be too much loss. I weighed out one and three-fourths pounds of flour. Into this I stirred one-half ounce of salt (by mistake I got in a little more salt than necessary). Then I added three-fourths of an ounce of brewer's yeast. The English recipe called for malt, but I considered this a good substitute. Anyhow it worked. The one-half ounce of yeast (one-fourth of a yeast cake) went into a cup

of milk and warm water. This, with another cup of water, to make a pint in all, I mixed into the flour to form a dough of good consistency. I then set it away in the pan to rise for twenty minutes. During that short time the dough got real life. I felt very proud and happy. My wife came and smelled again and became really interested. She helped stow away the dough into two bread pans. These were set aside for about half an hour to "rise" some more. They did, and then I put them into the oven for a forty minute baking.

Our fifteen year old boy is our food tester. If things get by him the judges might well award a blue ribbon. After the first cynical stare and comment on "the tough crust" he asked for a second slice and then another. And the next morning he asked for more of "dad's bread" for breakfast. I felt like running a flag up for excellence in home production. There is real satisfaction in chewing that wholewheat bread. You can just taste the food value.

But that isn't all about this home ground flour. It makes delicious cereal for breakfast. There's another time the boy came in for "proof in the eating." He never has liked cooked cereals—eats them under protest Well, it is different with this cereal; he asks for a second serving. My wife cooks it the night before, and is very careful in the preparation so that it won't be lumpy. She uses one cup of the flour and stirs cold water into this to make a thick gruel; this she stirs into the boiling water of the double boiler. I suppose this description is elementary to cooks, but men can be pardoned a little detailed enthusiasm. To know these things takes away that helpless feeling when we face the kitchen.

There is yet another episode. We have a friend who makes the most delicious home-baked graham crackers. There just isn't any comparison with the bought variety. We gave her some of our home-ground flour to try out in the crackers. She came back with a nice sizable sample of the crackers, and this comment, "They're the best crackers I ever baked." And they were. We could vouch for that. We think the exceptional quality of her graham crackers at this baking was due to the home-ground flour.

We have her recipe for graham crackers and her permission to share it with anyone. It came from a friend, now dead, who got it from her grandmother. The recipe itself, then, comes from those early homesteading days when it was customary to use whole ground wheat flour. Here it is:

- 4 cups of graham (whole wheat) flour
- 1 cup sugar
- 1 egg
- 1 teaspoon soda
- 1 teaspoon cream of tartar
- 1 cup butter (or oleo)
- ½ cup hot water

(Mix all and roll flat; cut in squares; bake in low temperature, which modernized is about 350°.)

Our friend uses white flour for rolling out the dough, and she bakes it from 15 to 20 minutes.

Whole wheat bread, cereal, and graham crackers make up three delicious reasons for getting more wheat to grind more flour in our home mill.

Relation of Soil to Health

By DR. W. G. MACDONALD

(Address given at the Open Day held at Chertsey Grange, England on April 28, 1949, by kind invitation of Mr. J. L. H. Chase)

Reprinted from *Mother Earth* (Haughley, Suffolk, England)

AT A previous meeting of the Soil Association at the Grange, Mr. Easterbrook warned us that we must not expect diseases of plants to disappear because compost is used. This admonition requires amplification if we would avoid the danger of generalization, and it will be my endeavour to fill in some detail.

We must clearly distinguish in our minds the state of health which connotes a general state of well-being with a high level of efficiency and resistance to disease; and disease which in the plant, the animal or the human being is characterized by vital inefficiency and is usually due to a specific type of infection or to deficiency.

Disease germs and viruses are part of nature's ecology and always have been, always are, with us. That in itself would lead us to doubt the banishing of disease by compost. While we recognize that the final cause of disease is infection by a specific 'bug', we must take into account a large number of contributory causes that make infection possible. Those we can lump under the general term of *adverse conditions.* They lower vital capacity. Then there are the particular factors of dosage and virulence of the infective agent, which, if overwhelming, must inevitably cause disease in the healthiest.

We fully realize that the adequate use of properly made compost provides, on the one hand, the best possible conditions for healthy plant growth; but, on the other hand, we cannot control all adverse conditions, climatic, the hunger of a desperate wire-worm, and so on. To expect disease to vanish would indeed be wishful or fragmentary thinking. What then can we expect?

In my garden in Boxmoor, Hertfordshire, strawberries (and also roses and apple trees) were for many years ravaged with Black Spot. Expert advice was sought and obtained in plenty. Chemical attack was tried with no beneficial result, the only response being weakened plants. New stock was introduced from different sources and all developed Black Spot.

Another crop that never could be

grown successfully was onions. White Rot caused by the fungus *Sclerotium cepivorum* invariably destroyed the majority of the bulbs.

But, when soil fertility was assured by an adequate use of compost, an astonishing transformation was seen. Both diseases, the Black Spot and the White Rot, slunk back into insignificance.

Composting a Health Service

The subsequent observations are of informative interest. In the first year of composting the diseases were negligible. By the second they had apparently disappeared. Last year, 1948, which, as you well remember, consisted of a procession of adverse climatic conditions, mild recurrence of both diseases was observed.

It is clear that, by composting, a plant health service had been inaugurated. Immunity was raised to a new level and the plants' resistance to disease was greatly increased. That this was and is a raised resistance is shown by the fact that with the bad climatic conditions of 1948 (early heat and drought, late frosts, cold wet periods). Black Spot recurred to some extent, to vanish again when weather conditions became favourable.

In the onion bed under adverse weather conditions an odd bulb weaker than the rest developed *sclerotium* disease, although the general crop was free from disease and of excellent quality. I may mention that the onions were Ailsa Craigs which are particularly susceptible to White Rot, and in passing let me stress the fallacy of the popular belief that large onions do not keep well. The keeping qualities of large onions depend on *how* they are grown. If starved on poor soil or forced and bloated by artificials they rot quickly. Composted they keep well.

We see then from these instances that as a result of composting plant resistance to disease is raised. This is further evidenced by the remarkable resistance of the compost-grown plants to parasitic attack. We have long known that it is the weakling and the diseased that attract parasites. In the hospital ward, for example, it is the desperately ill patient round whom the flies gather. So in field or garden it is the ill plant that is assailed by parasites and the 'illness' may be due to adverse climatic conditions, poor soil or nutritive imbalance due to artificials.

What is the nature of the health factor and increased resistance to disease in the compost-grown plant? There can be no shadow of doubt that this protection is given by a substance derived from the living soil, a substance that we have every right to regard as a hormone.

Transfer of Resistance

Since all flesh is grass the question logically arises; can this resistance derived from fertile soil be transferred by the healthy plant (a) to the animal, (b) to the human being?

It is obvious to anyone who has given thought to the problem of health that salvation lies only in raising immunity and increasing resistance to disease.

An attempt to destroy or control all germs and viruses by antiseptics would result in the weakening or extermination of the organism we sought to protect, be it plant, animal or man. In recent years we have become aware that in fertile soil, that is to say in earth enriched by the residues of plants and animals digested by moulds and bacteria, in short, enriched by compost, there are substances that destroy our natural enemies—penicillin is one of them. This purifying action of fertile soil is indubitably one of the greatest health factors on our planet.

Here, however, we are, at the moment, concerned with the constructive health hormone rather than with the germ destroying, or, as they are called, the anti-biotic soil substances.

Are we justified in believing that the compost grown plant bequeaths the health factor to the animal that feeds upon it? There is abundant proof that it does and that the animal, in its turn, derives a state of good health with markedly raised resistance to disease, and, mark you, not to one specific disease, but to all.

The rat experiments of McCarrison, Rowlands and Wilkinson, and others, have proved it in the laboratory; Sir Albert Howard, Mr. Friend Sykes and many others amply confirmed it on the agricultural scale; at the human level it has been demonstrated beyond doubt.

Our aim, therefore, is crystal clear. It is to insist on the *quality* of foods. Quantity without quality is, in very truth, *a crime against humanity* to be resisted by every possible means on every possible occasion. By our individual compost production, by helping our neighbours to a knowledge of the virtue of compost grown food, by the education of the politician (Strachey still bleats in terms of calories) we shall make progress.

Eventually we shall obtain maximum Soil Fertility and maximum Quality of Food. A real Health Service in contradistinction to Bevan's blunder of 'free' pills (not forgetting pheno barbitone!), wigs, spectacles and teeth! We shall then have all organic wastes converted into good, clean compost, by individuals, on a municipal, and on a national scale for our own uses and for export to our, and to the world's vast benefit.

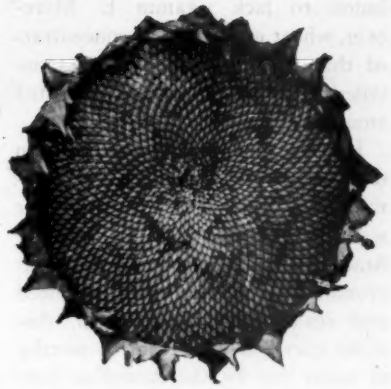
A False View of Science

Unfortunately, the human being is obsessed with the fallacy that test tubes and glittering apparatus possess some mystical virtue which is dubbed 'science' and under the cloak of science almost divinely infallible attributes are assumed. I repeat *assumed.*

The trend today is to process everything. Nature is lip-sticked and outraged by human 'cleverness'. Food is robbed of its removable essentials which, rendered stable (and often ineffective) by chemical means, are made into pills for sale at much profit. The buyers appear to be indifferent to the fact that they were defrauded of those essentials in the first place and, in the second, have paid an exorbitant price for an inferior article. Think for a moment of our daily bread—and cake. The bulk of the grain at our disposal has first been impoverished by artificials. The milling processes remove the mineral salts, the bran with

(*Continued on page* 55)

Sunflower and Sesame Seeds



These Seeds Have Nutritional Value as Sources of Vitamins E and F

By DR. W. R. RAYMOND

THE value of seeds in the diet has been increasingly recognized and appreciated in recent times. While seeds have been used extensively by peoples in various parts of the world, and to a limited extent in the United States, chiefly by foreigners who have been accustomed to the eating of certain seeds and seed products in their native country, it was not until J. I. Rodale popularized the value of sunflower-seed-eating, that the nutritional value of seeds was seriously considered by the American public.

Just what do seeds contain that makes them such valuable foods? Why have people taken so enthusiastically to the eating of sunflower seeds? Evidently they must contain certain nutritional essentials lacking in the modern diet. Just what are they?

In 1929, Burr and Burr first conducted their experiments which proved that certain unsaturated fatty acids, such as linoleic and linolenic, were essential for nutrition; and in 1930 they published a paper in which they identified these unsaturated fatty acids as essential food factors, which are now known as vitamin F. This vitamin is associated with vitamin E and lecithin in the oil and fatty part of seeds and in the embryo of grains. However, when vegetable oils are refined, their content of vitamins E and F, and lecithin, is removed. Likewise when whole grains are hulled and milled and are subjected to oxidation, their vitamin E content is largely destroyed.

It is claimed that the American people as a whole are suffering from a deficiency of vitamins E and F and lecithin, which, collectively are present in very few foods, and, in fact, are absent from most. When vegetable oils are refined and when grains are refined and milled, these vital substances are removed or destroyed. While wheat germ contains an appreciable amount of vitamin E at the time of milling, after it stands for sometime, its fat content undergoes decomposition and becomes rancid—a condition which causes a destruction of vitamin E.

Many people today suffer slow "nutritional castration," due to lack of vitamin E in modern foods. August J. Pacini, Ph.D., who has conducted a careful study of vitamin E, in a paper, "Why we Need Vitamin E" (*Health Culture*, Jan. 1936), says that the "average diet is almost completely lacking in vitamin E." He writes: "Thus, canned milk, canned vegetables, de-germed cereals and grain products, white sugar, refined salad oils, butter substitutes, beef from undernourished animals and a score of other usual food products are deficient or lacking in vitamin E; and contrary to the rather unintelligent assertions even from those who should know better, it is more difficult to insure a liberal vitamin E supply in the daily average diet than it is to insure an adequate supply of any other known vitamin.

"The mistake is in the belief that because the race is reasonably fertile, it need not concern itself with vitamin E. The race is fertile enough in numbers, yes, but not in quality of its offspring.

"There are studies, preliminary in a way, that prove that vitamin E profoundly affects the keenness of the mind and intellect. A vitamin E starved child is a dullard. A vitamin E surfeited child is bright, alert, vigorous and mentally responsive. If we are concerned with the bony framework of the child's body to the point where we administer freely of cod liver oil, how much more important is it that we should be concerned with the mentality of the very same child, and insure its supply of vitamin E? The world can progress even though its citizens be bodily crippled and deformed; but there can be no progress if the mind becomes dulled and warped and disintegrated."

While wheat germ has been advocated as a source of vitamin E, Pacini says that "much wheat germ is sold and furnished to humans and animals in the blind hope that it is rich in vitamin E, when, as a matter of fact, it may be entirely devoid of this food accessory factor."

Practically all vegetable oils on the market, obtained from seeds, lack vitamin E as the result of refining, while if it were possible to obtain virgin, unrefined oils, they would soon lose their vitamin E content as they get rancid. Certain wheat germ oils, unless properly extracted and free from rancidity, were also

found to lack vitamin E. Moreover, wheat germ oil is so concentrated that there is danger of overdose unless taken in carefully limited amounts.

In view of this situation, we can understand the reason for the enthusiastic reception of sunflower seeds by the vitamin-E-hungry American public, since these seeds provide this vitamin in a balanced and readily assimilable form. Another excellent seed that is worthy of wider use by the American people is the sesame seed, which for centuries has provided the basic fats in place of butter and lard, in the diets of the peoples of the Near East especially in Turkey and Syria. The writer, for experimental purposes, has used sesame seed meal as his almost exclusive protein and fat now for a half a year, and with excellent results. He found this seed to be quite alkaline in reaction, easily digested and superior to most other acid-forming proteins and fats. From a report he received from the U.S. Department of Agriculture, the sesame seed is quite rich in calcium and vitamin C, more so than the sunflower seed. It seems to contain a certain amount of lecithin, vitamin E and vitamin F (unsaturated fatty acids), as do most other seeds. From it a variety of delicious food products can be made, including butters, a vegetable milk, a delicious oil, candies, dressings, etc. Many readers may be acquainted with the famous Turkish confection, "Halwah," which is made from the sesame seed. The hulled seeds may be chewed as they are; and they will be found tenderer and easier to chew than the sunflower seed, and quite tasty. Bakers regularly use sesame seeds to improve the value of baked products. We have recently made a vegetable meat substitute, using sunflower and sesame seeds, and have found it to taste more like meat, and to be more easily digested than the popular canned soybean-peanut-gluten meat sustitutes on the market. There can be no doubt that both the sunflower and sesame seeds are foods of the future—supplying nearly all of the important vitamins in a natural form, which is better than to take them as synthetic vitamins. They also contain proteins of biologically high quality. Virgin cold-pressed sesame and sunflower seed oils should be put on the market. They are fully as tasty and are less acid-forming and more digestible than virgin olive oil.

A Branch of Sesame with leaves, buds and a flower

Homemade Gardening Aids

Many Useful Garden Aids Can be Made at Home From Waste Materials

By JOHN KRILL

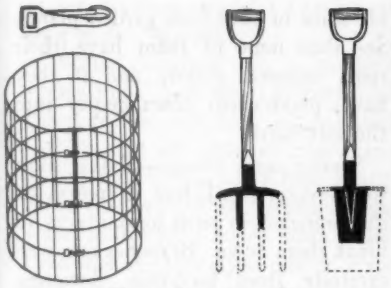
MORE gardeners would maintain compost heaps if there was a neat and inexpensive way to keep them. Those not held by some kind of retaining foundation soon become unsightly and shapeless. Good compost requires at least two turnings, three being much better. The shapeless pile awakens no enthusiasm for this muscular task since a new compost heap of the turned pile must be made. Should the compost heap be carelessly thrown up, rains, freezes and thaws will cause it to crack and break.

Here is a quick, neat, and almost moneyless method of caring for compost. Obtain a length of woven wire fencing. At the site of the compost heap, bring both ends of the fencing together to form a circle. The diameter of this wire cylinder will be the size of the compost heap. The length of fencing to get for any desired diameter is obtained by multiplying the desired diameter by 3.1416.

The ends of the fencing are held together by 3 or 4 small chain snaps obtainable at any dime store or hardware. Simply slip the snaps over any two end wires. (See sketch).

Start building the compost heap inside of this wire enclosure. When it is half-full drive a wooden or steel stake through the center and into the earth beneath. Be sure that the top of the stake is as high as the pile is intended to be. Fill to desired height with compost material.

When ready to start a second heap, simply remove the snaps holding the ends of the fencing together. Pull



Type of snaps used.
Ends held together by snaps.

Portions shown in dotted lines are removed.
Cut off section shown in dotted lines.

the fence away from the completed heap. Erect again at site of new heap. It takes less than a minute to remove these snaps and they can be used countless times. With the fencing removed the compost pile presents a symmetrical appearance. The stake through the center prevents caving or falling apart.

If only one compost heap is to be kept, remove fencing when ready to turn. Set up the fencing again near the compost heap within easy shovelling distance. Pull the stake out of the center. Now start turning by slicing downward on the outside of the compost heap. Toss this into the waiting wire retainer. Continue carving around until the entire heap is finished.

A pair of such retainers will make it possible to make any number of compost heaps of uniform size, one retainer being used to build full heaps, the other to be used when the heaps are being worked over. When weather remains dry for long periods, it will be wise to dig out a fair-sized depression in the top of each heap into which water may be poured. The post will not interfere with forming the depressions. Instead, water will find it easy to follow the post through the center of the heap.

In the fall, every addition of vegetation to the compost heap should be wetted down as soon as possible. The moisture causes weed seeds to swell. Frost then destroys these undesirable seeds by freezing the water content.

Without specially adapted tools the digging of bulbs and roots can raise blisters on the temper as well as on the hands. Ordinary garden spades and forks require too much muscle, as they turn up more soil in which the roots and bulbs repose than is desired. However, both of these tools can be converted into excellent devices for this purpose.

In the case of the garden fork cut off the outside tines flush at the shoulder. Then cut off the ends of the two remaining tines so that only seven inches remain. The full length can be left on, except that care must be exercised to prevent bending when in use. The shoulders of the altered fork will permit using the foot to drive it into the ground. The two closely spaced tines allow the fork to be used in close spaces and turn up only a minimum of earth without disturbing adjacent roots or bulbs.

Plants can be quickly and safely removed for transplanting by boxing it with fork thrusts on four sides like a square. Then the plant can be pulled up with an ample amount of soil surrounding the roots. (See sketch).

The garden spade can be similarly altered, but it can be used best in loose soils. (See sketch).

Hyacinth

By JEAN McCALEB

WHEN you hear the names of various flowers and plants—some lovely, some thought-provoking, some odd—do you ever stop to wonder how those names originated? To delve into this fascinating mystery is to add new interest to every type of flower you see as well as to every flower picture.

Let's begin our search for unusual names with a lovely, old-fashioned flower, the hyacinth. How did it ever get its name? It has its origin in an old Greek story of mythology.

Hyacinthus, so the myth goes, was having a friendly game of quoits with the god, Apollo, when the "west wind god," Zephyrus, came by. He did not want Apollo to be friendly with the young man, Hyacinthus, who did not belong to the family of gods and goddesses. So the powerful Zephyrus hurled Apollo's quoit at Hyacinthus and killed him.

Here the story varies. In one version, Apollo's tears fell on the sand, and to lessen his grief, Zeus (who ruled the kingdom of the gods) caused white flowers to spring up in memory of the departed friend. But another version of the story was inspired, probably, by the glowing rosy-red spikes of the sweet-scented flower. This story tells us that vivid blossoms sprang up from the blood stains, where the wounded Hyacinthus fell on the sand, and blossomed every spring to comfort the sorrowing Apollo.

So, whether you are enjoying your own hyacinth blossoms in a flower pot or window box, or whether you pause to admire a florist's display or some striking picture, remember the story of Hyacinthus, Apollo and Zephyrus, for it is intended as a warning that jealousy, unless checked, may lead to tragedy.

GARDEN CALENDAR for JANUARY

By WM. H. EYSTER, PH.D.

ONE of the most interesting and exciting events for the gardener in January is the arrival of the seed catalogues. These catalogues have brilliant colors and optomistic descriptions of what your garden of 1950 will be like. It is not too early to formulate plans for your 1950 garden. Even though you are not a landscape architect, you can make a plan of your proposed garden. First make an outline of the garden and indicate the positions of the paths between the garden beds. Then mark the beds to show the positions of the rows (all on paper, of course). It will be well also, so far as possible, to indicate what vegetable or what flower is to be planted in each row or bed. By proper planning your garden can be beautiful as well as a source of health-promoting foods for your family. Do not overlook the advantages of a mixed garden, a garden in which you will grow vegetables, flowers, and herbs. Not infrequently herbs, by their odors, repel insects which come to attack your cabbage or other vegetables. Determine carefully, what seeds and what plants will be needed to plant the garden you have planned. It is wasteful to buy more seeds than you can plant. Buy only the kinds and amounts of seeds that you will need. In selecting seeds, consider your favorite vegetables and flowers, height of the mature plants, color of flowers time of flowering, time of maturity of seeds and fruits, and other plant characteristics which will add to the beauty and usefulness of your garden.

THE NORTH

Flower Garden: — Inspect your stored bulbs and tubers in the cellar to guard against their becoming too dry. They keep best in moist sand. Tender bulbs must be protected from freezing temperatures.

Sow seeds of such small-seeded annuals as petunia, snapdragon, lobelia, candytuft, cornflower, begonia, vinca, verbena, delphinium, dahlia, summer flowering carnation, and pansy for outdoor flowering. For greenhouse flowering, sow gloxinia, tuberous-rooted begonia, kalanchoe, Christmas cherry (*Solanum* pseudocapsicum), calceolaria, cyclamen, and gloxinia.

Other seeds that may be sown at this time are dusty miller, bellis, genneria, myosotis, and pentstemon.

Water African violets from the bottom with water having approximately the same temperatures as that of the room. Do not wet the leaves. The plants prefer a light window but object to direct sunlight.

Christmas plants can be kept beautiful and cheerful a long time if they are given proper care. Check the plants of your window garden to determine which, if any, need repotting. Carefully knock out the ball of earth and if a mass of roots is showing, the plant needs repotting and should be transferred to a pot that is 1½ to 2 inches larger in diameter. Pinch back weak and straggling growth.

Hydrangea, azalea and other plants for Easter should be started during January. Sunny days may bring to life some of your rock garden plants. See that none of them have their roots exposed unduly and if they have, press them down gently into the soft earth.

Shrubs and Trees:—Shake snow from evergreens before it freezes on the branches in such amounts as to break them down. Branches removed carefully from forsythia, flowering quince, winter jasmine, early flowering plum, and other spring-flowering shrubs and trees may be brought indoors and forced into bloom for colorful winter bouquets. For this purpose, select the longer branches and put them in large deep containers filled with water. They will bloom better in a cool than in a warm room. By careful collection of such branches a succession of blooms can be had until the plants bloom naturally outdoors.

Watch for mice around your woody perennials. A small circle around the stem should be kept free from mulch.

Lawn:—The lawn is dormant but can easily be ruined by promiscuous traffic passing over it in winter. A thin mulch of finely ground leaves tends to prevent alternate freezing and thawing on warm days and cold nights of January.

THE WEST COAST

Flower Garden:—Sow seeds of the tender and half-hardy annuals, and especially the small-seeded annuals like petunia, snapdragon, lobelia, and nierembergia. This also is the time to plant the seeds of such plants as aconite, gentian, helleborous, pentstemon which germinate better after being exposed to low temperatures. The seeds of hardy annuals can be sown outdoors where they grow to maturity. Seeds of the alpine plants may also be sown outdoors in January.

African violets like warmth, light but not direct sunlight, and warm water applied through the bottom of the pot. Poinsettias need plenty of water so that a good way to water them is to plunge the pot into a pail of tepid water and then permit it to drain 15 minutes before returning the plant to its ornamental con-

tainer. Cyclamens prefer a cool room that is well lighted.

Winter bouquets may be made of everlastings that were prepared for the purpose last fall, of flowering shrubs that are brought inside and forced into bloom. For best results recut the base of the branch under water and with a sharp knife rather than with a scissor-type pruner. Even wild plants as currants, cherries, and plums can be forced into winter bloom.

Single tulips may be brought into a warm room now. The double varieties do not force well before February. Oxalis plants potted in the fall should be coming into bloom now. Fuchsias may be forced into growth at this time.

January is a good time for pruning roses, as they are most dormant at this time. You should also prune overgrown vines as honeysuckle, trumpet creeper, and jasmine. It is too early to prune fuchsia, lantana, heliotrope, geranium, and other half-hardy shrubs.

Shrubs and Trees:—Newly planted shrubs and trees should be watered even though the ground seems damp. This will settle the ground snugly around the roots and close up air pockets. It is also a good plan to stake trees as a precaution against being blown over by winter winds. Tie the tree to three stakes placed at equal distances around the tree and at some distance from it. Fruit trees may be pruned during January. Early blooming heathers and acacias may be pruned as soon as they are out of bloom.

THE SOUTH

January in the South is a month for both planning and planting. The seeds of practically all plants may be sown outdoors this month in the deep South. Even plants of the more hardy kinds may be set out in January.

Flower Garden:—After setting out alyssum, candytuft, stocks, snapdragon, and violas, plant lily bulbs and gladiolus corms among them and broadcast over the bed some of the early flowering annuals as larkspur, poppies, love-in-the-mist, and baby-blue-eyes.

Jerusalem cherry, ardisias, and azaleas may be planted outdoors in the lower South. Azaleas should be pruned back so that they do not bloom this month.

Shrubs and Trees:—January is a good month for rose planting in the South. New bushes should be planted as soon as possible in well-drained slightly acid soil. Add plenty of compost and you will have healthy plants and large flowers. Established roses should be pruned, except the climbers which should not be pruned until after blooming. Polyanthus and old tea roses will not need much pruning. Trees and shrubs can be moved in January while they are dormant. Many of the summer flowering trees will benefit from winter pruning, especially crepe myrtle and althea.

THE DEEP SOUTH *

Flower Garden:—Flowers and seed to plant in January are: alyssum, African daisy, aster, baby's breath, bachelor's button, balsam, blue lace flower, calendula, calliopsis, candytuft, Chinese forget-me-not, Shasta daisy, dianthus, gaillardia, straw flower, hollyhock, larkspur, nasturtium, phlox, California poppy, petunia, Queen Anne's lace, salvia, statice, verbena, vinca. This is a good time to transplant such flowers as are already started, as well as cuttings, from hibiscus, allamanda, bougainvillea, etc.

Vegetable Garden:—In planting sweet corn, which does best planted this month, it is suggested that those who have been using compost liberally in the garden make a trial of the real golden bantam instead of the hybrids which have been popular in recent years. The only reason for using the latter has been that the hybrids have a tighter husk, making it slightly less liable to the entry of the cornear worm. The flavor of the hybrids has never equalled the original golden bantam. The use of compost has made such a tremendous reduction of garden pests among other crops, that it is quite possible it might work with corn as well. Plant also bush beans, beets, Brussels sprouts, cabbage, Chinese cabbage, canteloupe, carrots, cauliflower, collard, cucumbers, eggplant, endive, kale, kohlrabi, lettuce, mustard, onion seed and sets, parsley, parsnips, garden peas, peppers, potatoes, radish, romaine, rutabaga, spinach, squash, Swiss chard, tomatoes, turnips, watermelon.

Trees and Shrubs:—As already noted in a former issue, the papaya is one of the most valuable of Florida fruits. One of the difficulties in raising this fine fruit is its susceptibility to hurricanes and floods. A tree heavily loaded in the fall, with perhaps 40 to 50 papayas, especially if growing mostly high up, makes the tree top heavy. A flood, if sufficiently deep, can ruin a plant in a day or two. It is also not a good shipper, as it does not last long after ripening. Now comes the good news that a variety has been produced that can be shipped north successfully, and a method developed that permits of producing the main crop during the summer and early fall, before the season for the above mentioned handicaps. Further details will be published as soon as obtainable.

THE SOUTHWEST **

In the Southwest, January is one of our most important planting months. Keep your compost bins going, gathering in leaves, lawn clippings, and Bermuda lawn rakings. You need not be afraid of seeds from the latter if you compost correctly. Use Humisite, a local product, as an activator. It will work wonders with your compost. Set earthworms to aid you in your composting, and do not overlook the value of the much maligned sow bugs in your compost. Compost all winter vegetables, shrubs, and annuals, perennial and bulbs planted earlier in the fall. To get quick action in your composting,

* Edwin H. Abrams, St. Cloud, Florida.
** Charlotte M. Hoak, 1125 Stratford Ave., South Pasadena, California.

shop around and get a green food chopper such as was used by chicken raisers. You can get them for nothing, or a very small sum at many of the second-hand tool centers and country seed stores. Cut up all material into small pieces and sort according to the rapidity with which it breaks down. You save thereby hours of back breaking labor involved in turning compost.

Flowers:—Do not rush your season. January is our wet mid-winter month. Wait until the middle of February to do any extensive planting, either of sowing seeds in the open or setting out tender young plants. Mulch your stocks, pansies, violas, snapdragons, and primulas with leaf mold, compost and well-rotted cow manure mixed together. The main bulb planting season is over. However, in warmer sections, planting of gladiolus may be made, using double and triple rows. In heavier soil use a cushion of sand in the bottom of the rows. Callas, montbretias, nerines, the various belated cold storage lilies, and amaryllis may be still potted up and succession planting of anemones and ranunculus may be made in plant bands to be set in position later. Toward the end of the month, plant achimenes and bring them on in heat. If many are desired, try bringing them on in flats of damp Georgia peat or Sponge Rok, a very fine material easily obtainable at our regular seed stores. Take up dahlia tubers and store where they will not dry out. In February, try raising them from cuttings in the same manner as you do sweet potatoes. Start seeds of the semperflorens begonias which come very readily in the greenhouse so as to be ready for March planting. Watch your house plants, being sure they are never over watered on one hand or allowed to dry out on the other. Use Sponge Rok in the bottom of your trays, it is clean, attractive, and is a splendid moisture distributor and conserver.

Vegetables:—January is one of the best months to put in artichokes, asparagus and rhubarb. Prepare your ground thoroughly, for vigor and productiveness are dependent on how well the initial work of preparing holes and trenches is done. Try flat culture with your home asparagus bed. This month is a good one for working over your strawberry beds. If you have little room, use the runnerless Rockhills for an edging for some of your flower borders. Horse radish roots are available and potted herbs may be set. Leaf garlic and chives can be set at the time, and many are using a popular South African plant, *Tulbagia violacea*, whose leaves make a fine substitute for garlic. The various herbs grown in pots can be used to renew your herb bed.

Trees and Shrubs:—The nurseries are well-stocked with bare root material both fruits and ornamentals. Select your deciduous spring-flowering trees and shrubs and deciduous shade trees. Better results are being obtained by using balled plants of the flowering peaches and crabs. It is better to select your planting material the first of the year instead of waiting until late February and March. More choice varieties and finer specimens are obtainable. Never let the roots of bare root material dry out. It is well to carry them in a container of puddled soil or covered with damp gunny-sacks when planting. Make all holes large enough to afford ample root room. Use compost, but no manures or commercial fertilizers. Settle the soil by watering, basin and mulch. Stake all specimens which may be injured by winds and rain. Balled broad leaf evergreens and conifers can be planted to advantage while good material is on hand. Bare root roses planted at this time of the year come on better than root bound tinned ones that have set in the nursery over the summer. Use only No. 1 stock with three good foundation branches trimmed to the proper length. If you are in doubt, ask your nursery man to do this for you. All deciduous fruit trees can be planted during their dormant period. Prune the tops to the regulation lengths and remove any bruised or broken roots. Use the sharpest and finest pruning shears for this work and take the precaution to see that you have the right disinfectants. Use tree heal on all large cuts. Protect the trunks of all deciduous trees with tree white-wash or the yucca tree protectors. Winter sunshine can ruin your trees. Grapes and the usual berry vines can be planted at this time. Be sure that all are properly trellised. Mid-winter is the best time to do your deciduous pruning of both fruit and ornamental trees and shrubs. If you are not certain of how this pruning should be done, you can get this information from the University of California Agricultural Extension Service, Berkeley 4, California, Circular No. 112. R. Sanford Martin's invaluable book, "How To Prune Fruit Trees", is carried by all the seed stores. Its pictorial simplicity is fine, one of the best books you can possess. It gives full directions on how to plant, prune, stake and trellis deciduous citrus and subtropical fruit trees as well as berries and grapes. Visit your local nurseries to observe the different camellias and azaleas as they come into bloom during the next two or three months. Prune your established roses at the accepted time in your locality. Apply a liberal mulch of compost and cow

(*Continued on page 55*)

Italian Enclosed Method *of* Making Compost

By J. I. Rodale

THE series of pictures shown in this article describe how an ordinary open pit can be converted to the Selvi method. First we cemented the bottom but slanted it toward the pipes shown in the picture so that the liquid would drain out into the little pit. This liquid should not be returned to the mass of material in the pit. It should be applied direct to the soil, possibly where a crop will grow about thirty days later to give it a chance to decompose.

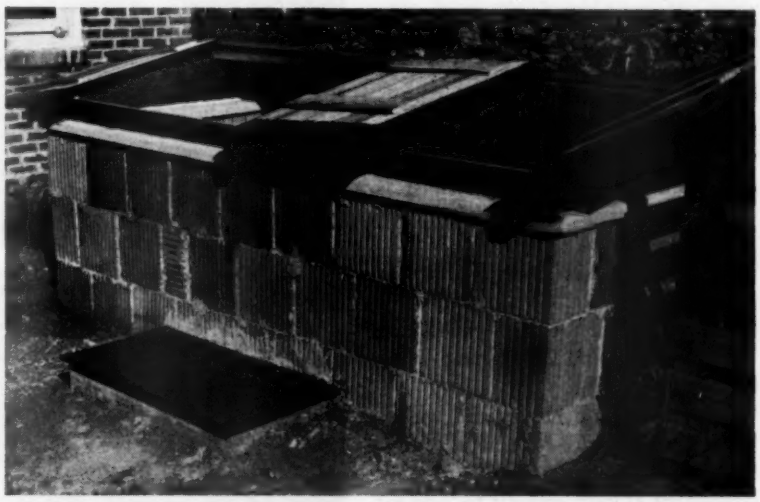
The enclosure should be made as air-tight as possible using caulking compound. Air of course will get in, but in a limited way. This pit is divided into two parts. In the first one we are placing only green matter such as weeds and ground-up corn cobs. In the second one there will be the same kind of material, but with a liberal supply of earthworms and plenty of water. The purpose is to see the effect of decomposing green matter only, under the Selvi process.

Probably every gardener will want to have one of these enclosed pits. In the new method, some of his materials will be composted in this manner, but the majority of it should be applied direct to the soil as described elsewhere in this magazine. We do not suggest that composting be done away with, but we are providing a method of making a much higher quality compost.

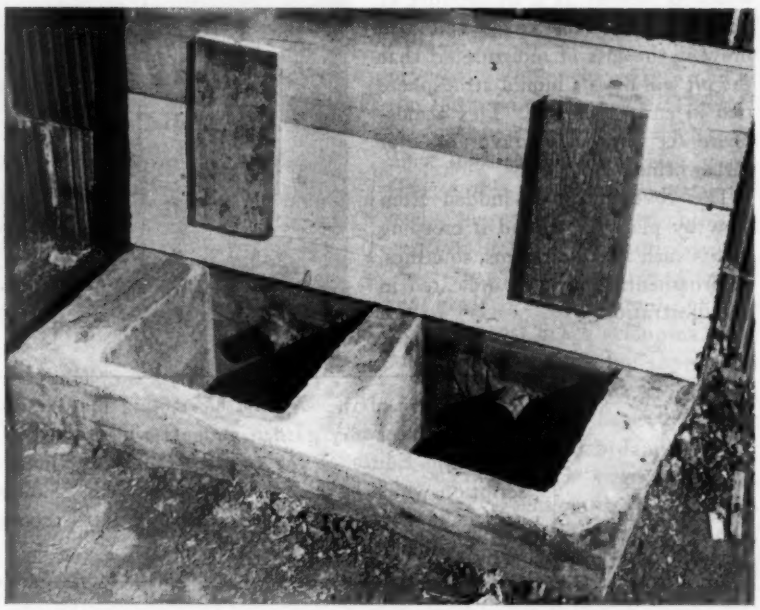
There are many possibilities in the combinations of material that are composted in such an enclosed pit. All manure can be used, or manure mixed with green matter. Experiments will have to be made in using lime, or in making some batches without it. We will have to find out

(*Concluded on page 56*)

A pit built of tiles which has been modified into the enclosed type. Note cover on pit and on the drainage pit at the base.



The same pit with the top lid open.



Enlarged view of the basal pit into which the juices from the composting materials drain.

An Inexpensive Enclosed Pit

Made of Flue Lining

AN inexpensive enclosed pit can be made by digging a section of flue lining into the soil as shown in the accompanying illustrations. The upper rim of the flue lining should be an inch or two above the surface of the ground. To prevent the plant juices from escaping into the soil at the bottom of the pit, pour a thin layer of cement to serve as a floor, or tamp a layer of clay to seal the bottom. Because of the small size, it is not necessary to provide a drainage pit for discharging the plant juices which are formed as a by-product of the fermentation processes.

The flue linings come in different sizes and can be obtained from a Buildings Supply dealer. A flue lining 2 feet square and 2 feet deep is recommended.

The pit should be covered with a close-fitting board or metal cover. The cover need not be air-tight but should fit closely enough to prevent the escape of the carbon-dioxide which is formed as a by-product of fermentation. This cover will also prevent the loss of moisture so that the pit will have a humid atmosphere rich in carbon dioxide. This atmosphere is especially favorable for earthworms.

The covered pit is hidden from view by planting around it creeping plants such as nasturtiums, squashes, or ornamental vines, as indicated in the illustration.

Readers of the *Organic Gardening* magazine are invited to send descriptions of any garden gadgets which they have designed to the Managing Editor of the *Organic Gardening* magazine. For each description which is accepted for publication, $5.00 will be paid. If you can make a rough sketch of your gadget to accompany your description, so much the better.

An Experiment With Frazer Compost

To Compare Its Effect with Ordinary Compost

By J. I. RODALE

IN experimenting with the new, enclosed Selvi method of making compost a thought occurred to me of another test that might show the superiority of compost made by a process in which the liquids do not leach out from below as against regular composts which do lose some of the liquid essences. Compost made by the Frazer method seemed to present such an example, for it is made in a huge digestor with bacteria in a five or six day process, and there is definitely no loss of water from below.

We set up a growing experiment in our hot house in nine pots, growing radishes. Three pots were filled with ordinary soil with nothing added. Three pots were given a dressing of ordinary compost and three were given a similar quantity of Frazer compost. The seeds were sown on September 6, 1949 and the radishes were harvested on October 29, 1949. The weights of the harvested radishes are as follows:

No compost	2	ounces
Ordinary compost ..	3½	ounces
Frazer compost	4	ounces

The Frazer compost showed a significant increase in yield—or about 14%. Of course this is only one experiment and there will be many others, but along with the other observed results that we have seen there is good reason to feel that the method of making compost where liquid losses are permitted to occur is not the best way of making it. What will be the final method is for the distant future to determine, so let us not be too hidebound or rigid in our thinking.

a. Ordinary soil with no compost added.

b. Ordinary soil with regular compost added.

c. Ordinary soil with Frazer compost added.

Make Compost With Earthworms

This is Within the Scope of The New Organic Method

By J. I. RODALE

FOR the small gardener I would highly recommend the breeding of earthworms for making compost. While they breed, they work with the raw materials of their boxes and turn it into a rich fine compost in only 60 days. This does not have the disadvantages of compost made outdoors which has the objection of resting on an earth bottom and which is open to the air. Let me explain our method of doing it.

We use wooden cases about two or three feet square and a little more than two feet high. In the boxes we put a mixture of raw materials. A typical mixture would be about 70 per cent weeds, leaves, grass clippings, etc., about 15% manure and 15% top-soil. This can be greatly varied. If no manure is available parts of your table wastes can be substituted. You can try almost any formula.

First, however, it is advisable to start with the purchased earthworms as they thrive best under conditions of captivity. See advertisements in *Organic Gardening*. Secondly before placing them in the boxes mix all the ingredients throughly. This will prevent the high heating which takes place in the regular compost heaps. One of the things which never has been thoroughly studied are the enzymes in the composting process. Since enzymes are destroyed at 40° centigrade (104° Fahrenheit) and since compost heaps get up to about 160° Fahrenheit it would appear that all of the enzymes are destroyed. But in the earthworm boxes the heat would not reach such danger points.

We must also be aware that manures and green matter contain vitamins. One rarely sees mention of this. We are told that in cooking

(*Concluded on page 52*)

Compost for Rose Garden

By B. C. WELLS

DURING the month of July, 1947, I took some rose cuttings from my best plants and propagated them in sand under some large glass globes. By the latter part of September they had taken root and were transplanted to 3" pots and again put under the same glass globes where they grew very slowly all winter.

Early in April of 1948, I took 50 of these plants and set them out 8" apart where I expected them to stay for a year before moving them to the regular rose bed.

I did not expect anything from this bed of rose plants. In fact, I was not going to allow them to bloom the first year.

My neighbor had a fine heap of compost from chicken manure, straw, leaves, etc., and insisted on my using it around the roses.

I used plenty of this compost around these roses because I didn't want to bother with watering and cultivating them very much, but I would not trust the compost around my fine 2-year old rose bushes, purchased from Jackson & Perkins Co.

Within six weeks after I put the compost around this propagated rose bed, from one to three heavy sprouts (or canes) started bursting through the ground on everyone of the 50 plants.

Before a full year had elapsed since the cuttings were taken from the old rose bushes, and put in the sand for propagation these very cuttings were rose bushes 24" to 36" high with from 2 to 4 heavy canes that had a mass of the finest of blooms that begin in June and lasted until December.

This over-crowded rose bed of propagated rose bushes produced more and better blooms than the 2-year old bushes in an adjacent rose bed.

My friends and neighbors wanted to know what I did to produce such rose bushes in one year, but I could not answer the question because I did not know at that time and it was only after I received my first copy of *Organic Gardening* late last Fall that I realized that the compost given me by a neighbor had produced such wonderful results.

I don't blame anyone for not believing this article—because I surely would not if it were told to me.

I am giving the compost full credit for this miraculous growth because 12 rose plants of the same class were planted in another bed where no compost was used and they did very little growing.

Make Compost With Earthworms

(*Concluded from page* 51)

foods much of the vitamin content is destroyed by the heat. Therefore why should this not also be true of vitamins in a compost heap? But in earthworm boxes the heat does not get high enough to destroy enzymes or vitamins. The earthworm compost is also rich in the castings or manure of the earthworm which is far superior to ordinary animal manures such as horse, cow or pig.

The material in the boxes should be piled to a height of two feet and kept sufficiently watered, but do not put too much water in, or it will create an anaerobic condition. In the Italian method of the enclosed pit we do not exactly have an anaerobic condition. Some air does gain access to the inside, and since no water is put in, the organic matter is not drowned. There is space for air which is rich in carbon dioxide. We have found that earthworms can thrive in this atmosphere. It is the combined action of the earthworms, bacteria, fungi, etc. which produces the best kind of compost you will see.

The process takes about 60 days. Then you take out half a box of material and fill it up with the raw materials again and in 60 days the new stuff will be completely composted. It is advisable to feed the earthworms with something equivalent to chicken mash, but you can make your own feed, using ground leaves, ground grain seeds such as wheat, barley, corn, etc. See our booklets *Our Friend the Earthworm* $1.00 and *The Formation of Vegetable Mold Through the Action of Worms* 60c, for further information.

In the spring you can transfer your earthworm and compost-making activities to the outside, being sure that you have a cement base. We recommend the use of covered pits, using the Italian method. Do not let rain water get in.

Dr. John Clayton Gifford

(*Continued from page 31*)

than like chickens' eggs in size.

Trees were planted in forest formation wherever there were holes in the rock and not in the usual orchard plan. This was done for several reasons. This system divided trees of the same species so that should a pest or fungus attack a tree, it was with greater difficulty that it reached another. However, I have yet to see one of Dr. Gifford's trees suffer with any blight or have any nutritional failure. Also the more normal way afforded more shade and greater protection to one another during hurricanes.

There are some parts of Dr. Gifford's yard that are like stepping into another world. Rubber, lebbek, and poinciana trees offer such dense shade you feel you are in a tropical jungle. Here grass does not grow for lack of sun but the forest floor is covered with a mat of falling leaves so that walking is easy. In this shade the atmosphere is cool on even the hottest days.

Dr. Gifford never planted trees that were difficult to maintain. He believed that trees should be propagated that served man, not those that man must serve. Trees that are heavily damaged by cold belong in warmer countries. Trees which will not fruit in a locality belong in another and should be replaced by naturalized varieties. He was a firm believer in selected seedlings rather than budded stock as this is the more natural way. However this rule was not fixed to the complete exclusion to the other yet it was seldom broken unless certain particular gains were to be made. He never understood why people struggled in South Florida to grow roses and gardenias when ixora, alamanda, bougain-villea, hibiscus, poinsettia, thumbergia, petria, plumbago, jasmines, dombeya, and many other flowering vines and shrubs grow unattended.

With emphasis on the forest, Dr. Gifford was essentially a conservationist. While an authority on tropical plants, his chief interest was the conservation of the fertility of the land and the development of fertility where it did not exist. He firmly believed that the only sensible way was through the formation of humus because only thereby is the character (texture and porosity) of the soil improved as well as mineral content. He always maintained that Nature's way was the best way and in many respects man has done little to improve and help her along.

Dr. Gifford has worked along these lines for fifty years in South Florida and the West Indies. It is hoped that in this length of time through his enthusiasm and magnificent personality, he has gained many converts that will carry his ideas further along for the benefit of those of us who are now living and for the generations to come.

Burpee's New Kind of Giant Zinnia

FLORADALE SCARLET

Sturdy Plants 2½ to 3 ft. tall

SPECIAL! *Seeds for only* **10¢**

The long, fluffy, ruffled, chrysanthemum-like petals set a new style—largest of all informal Zinnias ever introduced! The graceful scarlet-red flowers, 5 to 5½ in. across on extra long stems, go handsomely with other flowers in arrangements—make stunning bouquets by themselves. A spectacular garden display. Easy to grow.

Seed Supply Limited—Order Today!

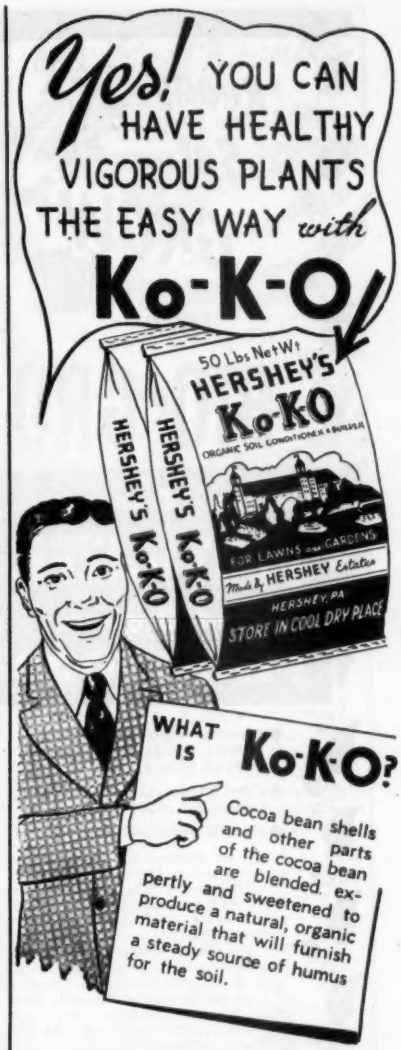
So every garden may have this new Burpee creation this year, prices start at 10c, postpaid: **SPECIAL, 30 Seeds 10c; 100 Seeds 25c; 1/4 Ounce $1.00.** Send cash at our risk.

The New Flower for 1950
You'll Hear About All Year
Garden leaders are already publishing its praises. It will be the talk of garden fans all summer. Be one of them by ordering seeds now!

Burpee Seed Catalog FREE
More new Burpee creations in better flowers, also the new Hybrid Vegetables everybody's talking about. 128 pages of helpful facts, to give you a better garden.

W. Atlee Burpee Co.
Address: **467 Burpee Building**--*at nearest city:* **Philadelphia 32, Pa.** *or* **Clinton, Iowa** *or* **Riverside, California**

Burpee Seeds Grow


Yes! YOU CAN HAVE HEALTHY VIGOROUS PLANTS THE EASY WAY with Ko-K-O
50 Lbs Net Wt
HERSHEY'S Ko-KO
ORGANIC SOIL CONDITIONER & BUILDER
FOR LAWNS and GARDENS
Made by HERSHEY Estates
HERSHEY, PA
STORE IN COOL DRY PLACE
HERSHEY'S Ko-KO
HERSHEY'S Ko-KO
WHAT IS Ko-K-O?
Cocoa bean shells and other parts of the cocoa bean are blended expertly and sweetened to produce a natural, organic material that will furnish a steady source of humus for the soil.

FOR LAWNS AND GARDENS

- **Apply Direct to the Soil**
- **Mix in the Compost Heap**
- **FEED TO EARTHWORMS**

An essential material for the Organic Gardener... A slow-acting, long-lasting energizer that increases and replenishes the organic content of the soil... Improves soil texture... absorbs and retains plant-nourishing moisture... helps decomposition of soil break-up into humus... binds sandy soils... loosens clay soils.

Packed in Handy 50 Lb. Bags

If your dealer cannot supply you we will ship direct to you where Pick-up and Delivery is available; if not available shipped to nearest freight station. Freight prepaid East of Mississippi River. (Write for freight rates west of Miss. R.)

NEW LOW PRICE

Send $1.90 for each 50 lb. bag; enough for 200 sq. ft. of NEW lawn or garden. Minimum Shipment 100 lbs. (2 bags)

HERSHEY ESTATES

HERSHEY, PENNSYLVANIA

Ready, Set... GROW with BIO-GRO

the only true liquid FERTILIZER and Organic PLANT FOOD

- Promotes Growth of FLOWERS, LAWNS, BUSHES, VEGETABLES, POTTED PLANTS...
- CONCENTRATED—Ready for Instant Use...
- Has NO UNPLEASANT ODOR!

You'll be amazed at the way your growing things thrive on BIO-GRO! It's absolutely NEW; a liquefied organic fish fertilizer with added micronutrients. Nutritionally complete—neutral in pH—absolutely SAFE for all plants. ECONOMICAL, too. One pint makes 40 to 100 gallons of nourishing, pure liquid plant food.

You can get BIO-GRO from most seed stores; or order by mail. Pint cans 85c; quarts $1.35; or half-pint trial size 50c—all postpaid.

ORDER NOW!

Make this year's garden your finest ...with BIO-GRO!

MANUFACTURED BY

BIOPRODUCTS Oreg. Ltd.

WARRENTON, OREGON

COMPOST AS YOU WANT IT

- ..SCREENED
- ..SHREDDED
- ..GROUND
- ..MIXED

(PATENTED) Rocks, trash separated. Grinds manure and tough organic matter through rolling screens, wet or dry. Screens fine as wanted through perforated screens. Free compost circular.

W-W GRINDER CORP. Dept. B WICHITA, KANSAS

Window Gardening

(*Continued from page 30*)

kangaroo vine (*Cissus antartica*), Nephthytis, Pandanus, Philodendron, Pothos, Sedums, Sansevieria, and Wandering Jew, African violet, primroses, Cyclamen, Anthurium, and bulbiferous plants.

Two Hours of Sunlight

In a window which enjoys at least two hours of sunlight, it would not be difficult for even the amateur to grow the following plants successfully: Asparagus "fern", Begonias, Flowering maple, House iris (*Marica*), Maranta, Osmanthus, Pick-a Back (*Tolmiea*), Peperomia, Pittosporum, Strawberry begonia, and spider plant (*Anthericum*).

Full Sunlight

A window with full sunlight is the choice window for house plants, especially those which produce flowers. Those which enjoy or really demand a place in full sunlight include Abutilon, Astilbe, Azalea, Cactus, Calceolaria, Cineraria, Crown of Thorns, Gardenia, Geranium, Heliotrope, Hydrangea, Jerusalem cherry, Kalanchoe, Lantana, Oxalis, Passion vine, Plumbago, Poinsettia, Shrimp plant, Sweet olive, wax plant (*Hoya carnosa*), and Eucharis.

Plants for Bright North Light

Certain hardy ferns and Caladiums, with their large ornamental leaves marked with white or pink or crimson, conspicuously veined, are well worth trying in your north windows. Caladiums should be planted in bulb fiber in August and changed tc small pots of rich soil in compost when roots have developed. They should be repotted twice during the period of rapid growth, each time in a pot one size larger. They must be warm and moist at all times. In brass bowls on a modern Chinese chest, with the light shining through their leaves, these bicolored members of the Arum Family are a breath-taking sight.

Ferns must be protected against crowding or brushing, and resent having water stand on their roots.

It's the Compost!

New Life for Gardens

In a few short weeks Q. R. Compost-Maker changes all vegetable waste into rich, sweet-smelling compost with a thriving worm population which ensures soil yielding bigger, better crops and lovelier, finer-scented flowers.

PURELY HERBAL—NO CHEMICALS

For economy of time, cost and labour Q. R. is unrivalled and its use may be profitably continued without fear of ultimately impoverishing the soil.

NO TURNING NEEDED WITH Q. R.

The compost made with Q. R. brought most gratifying results in our garden and we are very enthusiastic about it. (Ohio).

Q. R. has given marvellous results with our Gladioli, Delphiniums, Bench Roses, and particularly with strawberries. (Minneapolis).

Testimony to Q.R.'s superiority has been received from all over the world.

QR

HERBAL ACTIVATOR

Special Offer to Readers

To encourage you to lose no time in trying Q. R. we will send an extra large packet, together with a valuable Book on COMPOST MAKING by the world renowned authority, Miss Maye Bruce for

Q. R. and Book $1 Post Paid

Please address your order today to:—

CHASE PROTECTED CULTIVATION LTD. CLOCHE HOUSE, SHEPPERTON, ENG.

ORGANIC SUPPLEMENTS

TO increase the NPK of your garden organically, we offer the following supplements—

For Nitrogen (N)

DISPOSAL ORGANICS—an excellent plant food containing nitrogen fixing organisms.

For Phosphorus (P)

RAW PHOSPHATE ROCK—finely pulverized Florida natural rock phosphate.

For Potassium (K)

ORGANIC POTASH—a natural organic derived from growing plants. No acid or acid reactive substances.

These products may be ordered all at once or individually. Each item contains many of the trace elements so essential to your soil. *Write today for full information!*

ORGANIC PLANT FOOD CO.

P. O. Box 132 Lancaster, Pa.

Relation of Soil to Health

(*Continued from page 42*)

its vitamin wealth, the germ with its high food and health values, the semolina, which all go to the chemists and processed food manufacturers.

The starch and gluten that is left is now 'improved' by bleaching with Agene, an improvement that causes dogs and ferrets fed upon it to develop fits. Can you imagine a more inexcusable exploitation?

Once imbued with the mystical, so-called scientific, idea it is difficult to return to sanity. Wholeness gives place to specialism, the concept narrows and the prejudiced doctrinaire is created, who brushes aside all evidence that threatens his tenuous concept. When his doctrine is also heavily backed by financial interest, his blindness to reason and to human needs is absolute.

That is what we are up against when we try to show the exponents of artificial manures the error of their ways. Our words seem wasted. Still, let us not be discouraged. Repetition has its propaganda value; and truth will out.

What is Natural is Scientific

When it all is said and done, is not what is natural the most truly scientific? The laws of Nature in actual fact are the laws of the electron and the atom with which the scientist deals fractionally and often destructively. Has any scientist ever succeeded in creating one blade of grass in his laboratory? Indeed, scientific attempts to emulate Nature's effortless productions are ridiculously crude. It is true that science has given us many marvellous advantages mechanically—rapid transport, communications, radio (that insects have used for centuries), nylon stockings and atom bombs. Mechanically we have been well served. But our basic needs remain. We must have food. To live well and to be healthy we must have good food and this we cannot get from the laboratory. The bread evolved by science becomes more and more like a stone. It keeps, yet does not nourish.

Many of you here have adopted composting to solve your own problems and to satisfy your own needs by ensuring a supply of good quality food in an age of less than mediocrity; to achieve a degree of health in a world of increasing ill health. By logical analysis you have arrived at the conclusion that *Nature* with an experience of plant production of over 300 million years and *the weight of evidence* provided by competent and financially disinterested observers shall be your guides rather than the specious advertising puffs of National Growmore or other artificial stimulants. You have learned that raw animal and plant waste, manure, is a plant poison until it has been transformed into compost by the action of moulds and bacteria. You have become steadfast composters and your industry in composting will carry more conviction than any words. Words can be denied; preaching can be wearisome; practice convinces.

No one can look upon a well-composted field or garden without danger of breaking the tenth Commandment, and none can eat of its produce, fresh and well-prepared, without enthusiastic appreciation of its quality, and without being the better and the healthier for it.

(In thanking Dr. MacDonald for his address, Mr. Chase mentioned that he himself used for his vegetables, flowers and fruit over 4,000 tons of compost a year and was satisfied that it paid him well, both directly in cash returns and indirectly in building up the fertility of his land.)

Garden Calendar for January

(*Continued from page 48*)

manure. Prune your climbing roses of the Hybrid Tea type and see that they are provided with the right sort of trellises, long and wide, not the conventional tall and slender ones, and you will have an abundance of bloom, not a fringe of blossom on top. Fertilize them as you do the bush roses. Let your Belle of Portugal and others of the same type alone; they should be pruned later when their early blooming period is over.

FOR *Best Results*
THIS EFFECTIVE
NON-ACID PLANT FOOD

In keeping with the Organic Method

INCREASES YIELDS · PERMANENTLY IMPROVES SOIL

QUICK ACTING · FULLY GUARANTEED

RUHM'S
natural, finely ground
PHOSPHATE ROCK

Flowers, lawns, vegetables, grains—all growing things respond quickly and vigorously to even one application of this safe, effective fertilizer.

Non-acidulated, Ruhm's Phosphate Rock won't leach out, so you can apply it now or any time, direct to the soil or to compost heaps. You'll get results first crop—and every crop for years to come. Three generations of farmers and gardeners attest its worth.

Ruhm's Gives Best Results

For Price, Full Information write

AUSTIN FEED AND SEED CO., Chattanooga, Tenn.
BRYAN & SHEFFER, Portland, Ind.
A. GRAMS AND SONS, LaCrosse, Wisconsin
J. E. HARRIS, Box 28, Ames, Iowa
SOILSERVICE, Townsend, Mass.
VAUGHAN'S SEED STORE, Chicago 6, Illinois

"Chel's Plant Mineralizer"
—source of safe potash

Pulverized granite rock, an important source of many nutrient trace elements, is again offered for organic gardening methods in the growing of all good things of the earth. For prices and descriptive leaflet, write to:

Chel's Natural Mineral Plant Food Company
P. O. Box 2023 Boston, Massachusetts

"We wish to sincerely thank the readers of this magazine for their generous response to our first offering of this product!"

YEAST is the worlds best
ENZYME-ACTIVATOR and Natural Manure Concentrate

That's right! Since life came to this Earth, yeast did practically ALL the activating. This microscopic fungus is ALL OVER this world. In the air, and on all 'surfaces'. It sours juices, 'rots' wood, and activates dough, produces an acid (vinegar) and alcohol. It is a real deodorant (putrefactive, ill smelling bacteria—cannot live in any acid). Now, harnessed into a concentrate, you can direct it into most marvelous performances in horticulture. Ask for FREE LITERATURE: HARNESSING YEAST, or try a generous $1.00 jar of either one or all 3 of these:

BIORG: for compost activation
SOILORG-Y: FOR Organic "yeast fertilizing"
GROWFAX: for worm food concentrate.

These are relatively new revolutionary products and may not have reached all garden supply dealers: if so, you may order them direct, postpaid, from

SCHIFF BIO-FOODS, DEPT. O.G. JERSEY CITY 3, N. J.

SOILBUILDER ORGANIC FERTILIZER

Contains meat scraps, bonemeal, blood, and composted vegetable matter. 100% organic

- NO FILLER
- HEAT STERILIZED

Will not burn—will absorb 8 times its own weight of moisture—high in trace minerals. Packaged in 2 lb., 35 lb., 50 lb. bags. If not available at your local dealer send for literature or ask your dealer to write us.

SOILBUILDERS INC.
Box 176 So. St. Paul, Minnesota

BETTER SOIL — BETTER COMPOST
Better Flowers and Vegetables

ActivO is amazingly useful for composting, for conditioning and activating soils; for converting chemical fertilizer; for hot beds, etc. A valuable multi-use product for better gardening. No. 71-1025 $1.00, treats 425 lbs. compost; No. 71-1030 $1.75, 1400 lbs. In catalog; many stores. SEARS, ROEBUCK & CO.

ACTIVO

IF ORGANIC SOILSERVICE HEADQUARTERS carry over seventy organic materials, more orders must be forthcoming or only Ruhm's Phosphate Rock and Activo will be offered. It's up to you. Send dollar for two pounds nitrogen, phosphoric or potash containing material, interesting free organic booklet and our price list.

Organic Soilservice Headquarters
TOWNSEND 9, MASSACHUSETTS

FREE CATALOG

STRAWBERRIES

- Best everbearing and June-bearing varieties. BIG, FREE 1950 CATALOG in full color. Shows and describes famous Kelly Strawberry Barrel. Satisfaction Guaranteed.

KELLY BROS. NURSERIES, INC.
86 MOREY STREET DANSVILLE, NEW YORK

GRO-QUICK HEATING CABLE
FOR HOTBEDS-COLD FRAMES-OPEN GROUND

Cut Germination Time 2, 3, Root Cuttings in 6 Days
Seed Up in 30 Hrs. Transplant 2 Weeks Sooner!

J40A Cable & Thermo. for 1 sash..... $6.75
S80A for double sash — 36 sq. ft..... $9.00
J40 40 ft. 200 watt, cable only..... $2.25
S80 80 ft. 400 watt, cable only..... $4.50

Special cables for benches, Soils, cabinets. Shipped direct prepaid if not stocked by your dealer. Write.
We prefer inquiries to our nearest Dealer.
GRO-QUICK, 581 W. Huron St. Chicago 10, Illinois

To Organize New Organic Gardening Clubs As Follows:

SOUTH JERSEY ORGANIC GARDENING CLUB — Will all those interested in organic gardening and organic farming kindly get in touch immediately by mail, for the purpose of organizing the above Club, with Philip S. Wells, 24 Seventh Avenue, Haddon Heights, N. J.

ORGANIC GARDENING CLUB OF BELLINGHAM, Washington. All persons interested in joining this club, contact Garland W. Hanple, 1219 Bancroft Road, Bellingham, Washington.

ORGANIC GARDENING CLUB OF COLFAX, California. All persons interested in joining this club, contact H. E. Stalder, Route 1, Box 788, Colfax, California.

ORGANIC GARDENING CLUB OF WESTERN MICHIGAN. Organic farmers and gardeners in Western Michigan are requested to contact Mrs. L. H. Eyestone, 1092 Holton Road, Muskegon, Michigan.

ORGANIC GARDENING CLUB OF FLINT, Michigan. Will all persons interested in organizing a club in this area please contact Dr. A. L. Sumley, 1526 W. Court, near Miller Road, Flint 3, Michigan.

—o—

Italian Method

(*Continued from page* 49)

whether water should be applied to an all green-matter batch. In the silo experiment when manure only is used it was not permitted to use extra water. The manure contained sufficient moisture to allow the process to function perfectly. We are going to expect many letters from readers next year giving their experiences with this new method.

Growing Magic
from pure
COMPOST
5000 Years Old

BLACK ACRES HUMUS

Gardeners! Get new pleasure from your gardening with this pure organic compost from pre-historic lake bed. Rich, dried, odorless, weed-free, and screened for easy application with fertilizer spreader. *It is the perfect soil conditioner and enricher for lawns, plants, bulbs and shrubs.*

Gets giant results

Big Trial Bag $1.00—Postpaid

100 lbs.——$ 5.75, freight collect.
Ton lots——$48.50, freight collect.
Payment with order

BLACK ACRES FARMS
APPLETON, WISCONSIN

NORTHERN GROWN
ROSES

Hardy, rugged, two-year field grown ROSES. Make your ROSE GARDEN the prize of the neighborhood with these extra quality ROSE BUSHES. Write for catalog.

HEMLOCK HILL FARM
"The Mountain Valley Nursery"
NEW PARIS, PENNSYLVANIA

JANUARY
Organic Gardening Special
We want you to get acquainted with
Golden Rule Dahlias
and grow them the Organic way.
Here is our plus value special.

4 lovely miniature dahlia roots
4 outstanding cactus dahlia roots
4 huge, giant decorative dahlia roots
25 Ohio grown mixed dahlia seed

Each root is properly labelled and comes to you postpaid for $5.00.

Offer expires March 1st.

GOLDEN RULE DAHLIA FARM
DAYTON PIKE, LEBANON 2, OHIO

16 TRACE ELEMENTS SUPPLIED
by MARTIN
Natural Ground Rock
SOIL-BUILDER

- Now you can safely add the 16 important trace elements necessary for balanced soil nutrition. Martin natural soil-builder adds them to your soil quickly and safely. Apply directly to the soil or add to your compost pile.

Write for price and information

BALLY SPECIALTY PRODUCTS, Bally, Pa.

B.C.A.

BACTERIAL COMPOST ACTIVATOR FOR FARM COMPOSTING

B.C.A. is a newly developed compost activator that will greatly increase efficiency in your organic farming practices. Here is why:

•

B.C.A. is a mixed, concentrated, composite containing a multitude of soil Bacteria developed specifically for the rapid break down of mixed organic wastes in compost heaps. Speeding up the process in making an all organic humus fertilizer.

•

B.C.A. has Phosphate Rock incorporated in the culture which contains the 26 necessary minerals. Enough Phosphate Rock is in the Activator so that adding it separately to the heap is not necessary.

•

B.C.A. contains the trace elements, lacking in many soils and so necessary for the best results.

•

B.C.A. is a neutral Culture prepared with conditioning food for the Bacteria in a rich peat base.

5 lb. size — $2.00 Prepaid
West of Mississippi $2.50
For approximately 2 tons of compost

15 lb. size — $5.00 Prepaid
West of the Mississippi $6.00
For 6 tons of compost

Speed Up Your Composting With

B. C. A.

Write TODAY for details on how you can increase profits by using B.C.A. to . . .

ORGANIC PRODUCTS
Dept. B 235 Halsey St.
Newark 2, N. J.

Hints For The Flower Garden

CORAL BELLS

The heuchera or coral bells has an attractive leaf and the small pink or yellow bells on long stems last for at least a month. A border of them is much to be desired and enjoyed. They do better if surrounded with mulch as they are inclined to heave out of the ground and become too dry in the early spring sun. The lime of the racks is also utilized as it seeps down to the roots. The best clump I have faces south between a stucco-house wall and a concrete sidewalk. It is a mass of flowers, a week or so earlier than the others. One or two sprays of pink bells often add just the right touch to a flower arrangement, but I don't like to pick them as they last so long if left on the plant.

Una Nelson

COLEUS PLANT TIPS

One of the most beautiful house plants—the coleus; can be used for a double purpose. When slips are cut for new plants, a very pretty effect can be obtained by making bouquets of the leaves which are to be used for the slips.

Various colored leaves of this plant make a strikingly beautiful arrangement and will last indefinitely in water, and at the same time, the new roots are starting to grow while in the water of the container.

This should be done about two weeks before the slips are ready for potting, it will insure a good start for the root-system.

When the roots have a good start they should be transplanted into four inch pots, which have for soil a mixture of one-half sand, one-half peat moss, with a liberal amount of manure for fertilizer, mixed in.

This method of rooting slips, not only serves as a decoration in the home, but at the same time accomplishes the growing of slip roots.

Myron Parish, Box 779
Marquette, Michigan

COLLOIDAL
FOR THE LAND'S SAKE
SOFT PHOSPHATE

NATURALLY FINER THAN ROCK CAN BE GROUND
Containing 14 Trace Elements
The Fastest Acting Mined Product in History • • • •
TENNESSEE & FLORIDA ROCK—All Grades
"Organically Recommended"
HOOVER SOIL SERVICE
Phone 70 GILMAN, ILLINOIS

Burpee HYBRID CUCUMBER Seeds 10¢
Bears Double to Four Times as Much as ordinary kinds
Much more delicious—A sensation all over America! Crisp white flesh, small seed area, wonderful for slicing. 8 in. and more long. Disease-resistant; bears where others fail. Special, **10 Seeds 10c; 120 Seeds $1; ½ Ounce $2.75,** all postpaid. Order Today!
W. Atlee Burpee Co. *Seed Catalog FREE*
Address: **466 Burpee Building** *at nearest city*— **Philadelphia 32, Pa.** *or* **Clinton, Iowa** *or* **Riverside, California**

Cole's 1950 GUIDE to MODERN GARDENING
in full color
Featuring the New
ALL-AMERICA ROSE SELECTIONS
and "Everything That's Good and Hardy"
Offers a marvelous selection of all types of Shrubs, Plants, Trees, etc. grown by the latest and most approved methods of culture.
COLE'S LIBERAL GUARANTEE ASSURES SATISFACTION
SEND TODAY IT'S FREE
Sorry none sent to the deep south, far west, or outside of U. S. A.
The COLE NURSERY Company
3171 W. Jackson Painesville, Ohio

TUG-O-WHEEL
COMPLETE GARDENING OUTFIT
MAKES GARDENING EASY!
Thousands of satisfied users
CULTIVATOR AND MANY OTHER USEFUL ATTACHMENTS
IDEAL for VEGETABLE GARDENS
No more hard spading! You too can have fine gardens, with less time, less effort (do 10 hrs. work in 1). "TUG-O-WHEEL" does it—all steel outfit plows 5" deep; marks rows 12" to 36" wide; hills, cultivates, destroys weeds; fast, quick, easy; quality fully guaranteed. Free folder tells all. Write
TUG-O-WHEEL HAND PLOW CO.
Dept. O Ballston Spa, New York

READY TO BEAR
PLANTS and TREES

Buy our bearing age "STATE INSPECTED" Stock. Have fruit to eat and sell within 60 days, this year. Why Wait?

BRUNS MARVEL The sweetest, most "Acid-Free" everbearing strawberry. For folks who can't eat strawberries. See Special half price offer below.

MORTGAGE-LIFTER—Extra early Black Raspberry. Offered exclusively by us.

BLUEBERRIES — Grow large as a nickel. Sweet. Easy to grow.

STREAMLINER Everbearing Strawberry. 3 crops in 18 months. Bears June to winter.

Special "Get Acquainted" Offer
BRUNS MARVEL Acid Free Everbearing Strawberry
50 plants for $1 Postpaid

Send for FREE CATALOG
40 Pages in Natural Color

SPECIAL BARGAINS POSTPAID

10 Thornless Boysenberry	$1.00
10 Mortgage-Lifter Raspberry	1.00
25 Streamliner Strawberry	1.00
12 Morrison Raspberry	1.00
5 Assorted Cushion Mums	1.00
12 Latham Red Raspberry	1.00

SOUTH MICHIGAN NURSERY
Box 621, New Buffalo, Michigan

CLEMATIS

CLIMBING VINE of RARE BEAUTY
Easy-to-grow, hardy — produces a profusion of delicate flowers in spring and early summer. Ideal for fence, trellis or wall. 38 varieties in wide color selection, valuable cultural information in our free colorful catalog—Write today.

JAMES I. GEORGE & SON, Box F, Fairport, N. Y.

SWEET PEAS

Sweet peas are fond of cool weather, and an early start is essential for them. This can be accomplished by starting them in tin cans from which both ends have been removed, making it easy to transplant without disturbing them.

Set the cans in a "flat," or similar box, No. 2 is a good size can to use, fill with good soil, and plant 3 or 4 seeds to a can, in February. Keep in a cool place for 3 weeks, then they may be kept a little warmer. By the first week of April, they'll be an inch high, and should be set out where they are to grow. They will withstand frost, and some freezing.

It is a good plan to make a trench 8 or 10 inches deep and set the plants in this, filling it in as they grow; this puts the roots down where it is cool. They appreciate good soil; compost is ideal for them in fairly generous amounts.

My sweet peas grown by this method are frequently taken for hothouse flowers.

Edna B. Richards,
R1, Box 22, Florence, Mont.

Hints For The Vegetable Garden

THOSE POTATO EYES

Too many housewives cut the eyes out of the potatoes and feed them to the hogs or throw them into the garbage to be wasted entirely. The eye of the potato is its seed and the seed is the lifegiving part of the plant. The eye of the potato is said to be rich in vitamin E. The wise potato grower will therefore not only see to it that the cook leaves the eyes of the potatoes in but he will also save seed from the potatoes that have the greatest amount of eyes. Instead of advertising 'smooth' potatoes the time may come when the advertising will be devoted to the number of eyes per pound of starch. Maybe the potatoes considered culls now because of small size may have the greatest food value. Isn't it worth investigating?

Even the potato the size of a pullet egg bakes nicely if put into a muffin pan to help prevent shrinkage.

Mrs. Florence Gunn, Embassy Hotel, 851 S. Grand Ave., Los Angeles, Calif

I GARDENED ON TOP OF THE GARDEN

My new garden spot was cement hard, so I gardened on top of it. A bottomless egg crate was filled with rotting manure and half-ripe compost. Then rich black soil from the edge of a manure heap was piled a couple of inches deep around the crate. Cucumber seeds planted in the black soil were watered individually until the plants were several inches tall. Then pails of water were daily poured into the top of the crate whose cover was a washpan birdbath. Soon the crate filled with cucumber roots. We had more fine cukes than we could use.

Twenty pumpkins were raised by the same method except that the circle was wider and the center was discarded woven wire filled with old strawy cow manure. Pumpkin roots rose three feet higher than the leaves. This manure had not aged

Read these 3 Basic Books by J. I. RODALE

1. PAY DIRT

HERE is *the best guide to the organic movement.* The "bible" of thousands of gardeners, PAY DIRT points the way to proper farming and gardening methods, shows how the individual gardener can obtain bigger yields of disease-free plants, rich in health-giving qualities. A natural for everyone who wants to adopt organiculture. Cloth, 252 pp. **$3.00**

2. Stone Mulching in the Garden

A NEW INVENTION in gardening! An authoritative guide to the use of stones and rocks for obtaining greater yields and healthier plants. This sensational but natural practice obviates digging, cultivating, hoeing, and weeding. Here is the most remarkable and promising cultural practice proposed in recent years. Cloth, 164 pp., 50 photos. **$3.00**

3. The Healthy Hunzas

A BOOK about the inhabitants of the northwestern section of India who are astoundingly healthy because of the way they raise their food. A race of over 22,000 people, the Hunzas possess a bodily buoyancy that makes them unique among the world's national groups. This book should revive our conception of nutrition. Full details show how any gardener or farmer can apply the Hunza methods. Cloth, 263 pp., 20 full-page illustrations. **$3.00**

ORGANIC GARDENING, Dept. 1-G, Emmaus, Pa.

enough when the seeds were planted but the plants had free choice and entered this root's paradise when it was safe.

Summer squash planted in the rich soil dumped on top of the ground without any heap in the middle did quite well but the roots were disturbed by the daily watering. The main roots stayed up there in the top few inches of rich dirt.

Mrs. Florence Gunn, Embassy Hotel, 851 S. Grand Ave., Los Angeles, Calif.

HOME GARDEN IRRIGATION

Here is a simple "irrigation" arrangement for the backyard gardener who may occasionally be hit by a drought:

Get a length of discarded gutter pipe and place it in the garden, either on the ground or on sawhorses Remove the nozzle of your garden hose and tie the end onto one end of the gutter pipe so that the water flows into the trough. Now adjust the gutter pipe with stones and wedges so that the water will flow along the length of the trough but with portions of it spilling over one tilted edge all along the way. After the area is thoroughly soaked move the gutter pipe and hose to another area, and so on until the whole garden is soaked down. You can use extra lengths of gutter pipe if need be to reach the far ends of the garden. If you lack old gutter pipe you can easily build V-shaped troughs to serve the purpose.

Roger W. Remington,
Hampden Highlands, Maine.

CONTROL OF CUTWORMS

We discovered that cutworms are quite choosey in their diet, preferring certain kinds of weeds, so it is well not to weed too thoroughly. A wilted weed will betray the presence of a cutworm which can easily be unearthed and destroyed, thus saving the vegetable garden.

We also discovered that the cutworms invaded the garden from the surrounding grass, from all sides. Knowing that they prefer sunflowers to any other diet, we planted several rows of sunflowers very thickly as a border for the garden, then, on spying a wilted sunflower, the guilty "varmint" soon paid the penalty of sin. The year we did this (in Saskatchewan) was a particularly bad year as crops were reduced in many cases 50 to 75%. Everyone for miles marvelled at our garden as theirs was in many cases 75% destroyed and even more, and had to be reseeded.

As an example of how well this worked—in one typical morning in which we took a count—there were over 100! The danger period only lasts about 2 weeks.

H. Hoehn, R. R. No. 4
New Westminster, B. C.

Organic Gardening magazine will pay $3.00 for each *Hint for the Flower Garden* and for each *Hint for the Vegetable Garden* accepted for publication in this magazine. The hint must be the result of your own observation or experience, and should consist of approximately 100 words and typed in double space if possible. Each hint should be an account of your method of bringing the inherited qualities of an ornamental plant or vegetable to its fullest expression.

A Beautiful Garden and Gorgeous Cut Flowers

Moses Gladiolus

will give you weeks of beautiful bloom. Whether you want mass display or show specimens you will find the best selection of large productive bulbs in our new '50 color catalog.

New Catalog in Full Colors Sent on Request

Our new, colorful 48 page catalog lists and describes 200 varieties of top-quality gladiolus with tips on culture. It also offers lilies, dahlias, small fruits and berries. Send a card or letter for it today.

Alfred L. Moses

53 LAKE AVE. LIMA, N. Y.

GROW WHITTEN'S GIANT BLUEBERRIES FOR BIG PROFITS

All heavy producers. Plump sweet berries ½ to ¾ in. size. Reach 6 to 8 ft. height. 1-year plants to 5-year bushes. Send for Catalog of trees, fruits, shrubs, flowers. Choice Varieties. Lowest Prices. Catalog free. WRITE TODAY.

FREE Catalog

WHITTEN NURSERIES, Box 232, Bridgman, Mich.

FREE PLANT CATALOG

Send Today For This Valuable Colored Berry Book. Describes and illustrates in colors the leading varieties of Strawberries, Blueberries, Raspberries, Blackberries, Grapes, Asparagus, Etc. Gives complete culture directions written by a lifelong berry grower. Tells how we grow our selected strain Townsend's Guaranteed Plants. Every gardener and fruit grower should have this book.

A postal will bring your FREE COPY

TOWNSEND NURSERIES
L. SHERMAN TOWNSEND, Mgr
116 VINE STREET, SALISBURY, MARYLAND

THE ORGANIC FARMER

A New Magazine Issued by the Organic Gardening Organization

AT THE request of thousands of farmers from all parts of the United States and Canada, the ORGANIC GARDENING ORGANIZATION has launched a new *farm magazine,* called THE ORGANIC FARMER. This magazine is devoted exclusively to all aspects of farming, such as crop rotations, the reclamation of abandoned farms, soil management, soil building and fertilizer practices, and other fundamental agricultural practices based on *the organic method.* THE ORGANIC FARMER will in no way duplicate material published in *Organic Gardening Magazine.* It is concerned with the organic method as related to *farms* however small or large.

Sufficient tests of the organic method on a farm scale have been made to prove that this method is not only practical but highly profitable. Cover crops as green matter and sheet composting enable the farmer to make compost on a farm scale without special equipment or additional labor.

Each issue of THE ORGANIC FARMER is filled with articles on the organic method on the farm, as well as the latest information on all aspects of farming. It is issued monthly.

Don't miss the next issue of this important new publication. Subscribe now for one year ($3.00), two years ($5.00), or three years ($6.00). Send check or money order, or ask us to bill you.

Write today!

THE ORGANIC FARMER
Dept. 1-G, Emmaus, Pa.

GROW YOUR OWN Geranium PLANTS
Save $5 or More
Seeds for only 10¢
Special Offer!
Burpee Floradale Fancy
World's Finest Strain!
It's fascinating to watch your own Geranium plants grow from seed, in a sunny window. Wonderful for house plants, window boxes, urns, and in the garden. Enormous flowerheads—crimson, scarlet, salmon, rose, pink, white, mixed. The plants you grow for 10c would cost $5 or $6 to buy!
Easy to Grow
Start seeds now (we tell you how).
SPECIAL—20 Seeds 10c, postpaid.
Supply limited—Send Dime Today!
Burpee Seed Catalog FREE
W. ATLEE BURPEE CO.
Address: 463 Burpee Building
at nearest city: Philadelphia 32, Pa. or Clinton, Iowa or Riverside, California

FRUIT & NUT TREES
Tualatin Quick bearing Tree name Oregon
QUALITY NURSERY STOCK for 36 years
BULBS. ROSES .. VINES
ORNAMENTAL TREES & SHRUBS
send for big Free Nursery Catalogue
TUALATIN VALLEY NURSERIES
OVER 30 YRS OF GROWING P.O. BOX 310 SHERWOOD, OREGON.

FRAGRANT SHRUBS
Daphne cneorum—Intensely fragrant evergreen
Caryopteris Blue Mist—Fragrant Blue Spiraea
Viburnum burkwoodi—Fragrant Pink Snowball
One each for $2.00; 3 each $5.50 postpaid.
Free catalog—early order discounts
LAMB NURSERIES
E. 101 Sharp Box O-1 Spokane 11, Wash.

ARTISTRY IN GLADIOLUS ARRANGEMENTS
Modern arrangements styled by experts. A 44 page booklet that is designed to aid you in bringing new beauty into your home. 36 illustrations with explanatory text. A gift that will delight flower lovers. 25c.
THE GLADLAND CATALOG FOR 1950
This 44 page booklet is packed with information about Gladiolus and how to grow them. Describes 604 superior kinds at new low prices. The most complete list as yet cataloged. Price 25c, but we include a 50c coupon appliable to your first order.
GLADLAND ACRES — LEBANON, OREGON

MARKET GROWERS ATTENTION
We specialize in serving critical market growers and home gardeners with the very best strains of Vegetable and Flower seed. Write today for your free copy of our 1950 catalog.
TRI-STATE SEED COMPANY, Inc.
125 Dock St., Philadelphia 6, Pa.

J. I. RODALE says about
Make Friends With Your Land
by LEONARD WICKENDEN
"Written by a practicing consulting chemist, it covers technical ground in a manner surprisingly easy to read and enjoy. It strikes the final knock-out blow to the concept that chemical fertilizers are in any manner good for crops and soil."
Illustrated. 144 pp. $2.50
ORGANIC GARDENING
Dept. 1-G, Emmaus, Pa.

LILY SEEDLINGS

Q. The lily seeds that I planted last autumn came up this spring and have grown into healthy-looking seedlings. Should these seedlings be taken up? If so, when should they be replanted, and at what depth?

S. S. W., Willimantic, Conn.

A. If the lilies are hardy and able to spend the winter in the soil without freezing they need not be taken up this fall. If it is desired to space them out or transplant them into another part of the garden, they should be taken up when the leaves begin to lose their green color and give other evidence of the end of the season's growth. In transplanting, the bulbs should be planted at a depth which is equal to about three times the height of the bulb. As the bulbs grow larger in subsequent years, contractile roots will pull the bulbs deeper into the soil until they reach the depth which is best suited to that particular kind of lily.

POSSIBLE FERTILITY OF THE SOIL

Q. I am interested in utilizing a plot of ground. How can I determine if the soil is good or if it lacks certain elements?

Mrs. L. C. G., Pittsburgh, Pa.

A. A great deal can be learned concerning the fitness of soil for growing plants by observing what weeds grow in it. An abundant growth of sheep sorrel (*Rumex acetosella*) indicates that the soil is extremely acid; nettle, violets, various sedges indicate a more or less neutral soil; while rough bedstraw (*Galium aparine*), clover, sweet clover, fall dandelion, and plantain (*Plantago me-*

(*Continued on page 63*)

50 for $5. TREES
Large, healthy 3- to 4-year old, 6- to 14-inch trees. 10 each of Blue Spruce, Norway Spruce, Red Pine, Scotch Pine, Mugho Pine. Sent postpaid at proper planting time in spring. For Evergreen catalog, write:
MUSSER FORESTS, Inc.
Indiana, Pa.

SEEDS OF RARE PLANTS
Our descriptive catalogue, sent upon request, lists seeds of the less usual species, alpines, bulbs, shrubs, conservatory exotics and the like.
REX. D. PEARCE
Dept. D Moorestown, N. J.

FRUITS for YOUR GARDEN
••EVERYTHING YOU NEED••
Finest selection of Fruit Trees; popular Dwarfs. Giant Blueberries, Boysenberries, Raspberries, Grapes, Strawberries ... Everbearers, other best varieties. Roses, Shrubs, Evergreens. Big Line of Highest Quality Plants at NEW, LOW PRICES. Cash orders earn extra plants. Write now for our FREE CATALOG.
CATALOG FREE!
WHITTEN NURSERIES, Box 235, Bridgman, Mich.

Clean Chimneys Permanently
Stops down draft—prevents furnace explosions. Satisfaction guaranteed. This copper pot (with character) Mailable. For free booklet address
WIG., ABINGTON, MASS.
SAVES FUEL

Dwarf Fruit Trees
Produce full size, top quality fruit in small spaces. Best Apple and Pear Varieties. Write for our BIG, FREE 1950 CATALOG in full color. Satisfaction Guaranteed.
KELLY BROS. NURSERIES, INC.
50 MAIN STREET DANSVILLE, NEW YORK

Interested in learning to WRITE?
Let these three books start you off on the right path . . .
The Word Finder
by J. I. RODALE
Speedily builds bare thoughts into expressive sentences. *Much more useful than a thesaurus!* 1350 double-column pages, thumb-indexed. $6.50
The Word Bank
by S. BASESCU
New type of synonym book. Quickly helps you find the *right* word. Invaluable for building your vocabulary. 216 pages. $3.00
Short Story Writing
by F. ORLIN TREMAINE
Step-by-step guidance by popular editor and author. Includes complete short story with analysis. Adopted by U. of Vermont. 240 pages. $3.50.
Postage prepaid when cash accompanies order.
RODALE PRESS, Dept. 1-G, Emmaus, Pa.

Classified Ads

Rates are 21c a word. Minimum 25 words, or $5.25. Payable in advance. Include name and address in word count. (Deduct 15% from total rates, for Help or Positions Wanted ads.)

FLOWERS

AMARYLLIS, Equestre, rich red, **CALADIUM,** Lord Derby, pink and green, 2 bulbs of each plus instructions $1.00 prepaid. **ORGANICALLY GROWN.** Remit with order please. **JOHNSON BROS., R. D. No. 2, Somerville, N. J.**

BEGONIAS Free list now ready including Tuberous, Fibrous, Rex, and all new crosses. Send for it today. **D-VISTA GARDENS,** 3225 D St., Salem, Ore.

DELPHINIUM, Giant Pacific, Prizewinner, also fine Primroses, Plants, seed. Free catalog. **OFFERMAN DELPHINIUM GARDENS,** 4709 W. Stevens, Seattle 6, Wash.

THE BEST IN GLADIOLUS. We list most of the new and the best of the old varieties. Write for price list. Wholesale and retail. **CHUCK'S GLAD PATCH,** Dept. J. Albert Lea, Minn.

GLORIOUS GLADIOLUS for 1950, Commercial and exhibition varieties, also outstanding iris and peonies, Wholesale-retail. Send a card for free catalog now ready. **GLADVIEW GARDENS, Maple Plain, Minn.**

MODERN GLADIOLUS! Our free wholesale & retail catalog lists the best varieties in all price ranges. **LINS GLADIOLUS, Cologne, Minn.**

GLADIOLUS BULBS; 250 Bulbs for $5.00. Grown without chemical fertilizer, write for lists. **MEFFORD FARMS, R. No. 2, Lawrenceville, Illinois.**

GLADIOLUS—Deluxe Assorted Rainbow Collection (30 varieties) 100 large bulbs $4.95 postpaid. Our new, colorful, 48 page catalog lists and describes 200 varieties of top quality gladiolus with culture tips. Send for it today. **ALFRED L. MOSES,** 53 Lake, Lima, New York.

GLADIOLUS BULBS:—One million choice bulbs at bargain prices. Our free catalog lists varieties you should grow. Send postcard to-day. **SIBOLE'S GLADIOLUS GARDENS,** Box 112, Brampton, Michigan.

100 BLOOMING SIZE GLADIOLUS BULBS, in about 50 gorgeous colors, $2.00; 200 bulbs, $2.50, all postpaid. Write for free catalog featuring many outstanding new varieties. **TAYLOR GARDENS, Ware, Mass.**

POTS FOR AFRICAN VIOLETS—4" "Squatty" porous red clay flower pots ideal for growing African Violets. Specially treated edges helps prevent leaf sloughing. 4 for $1.00, 10 for $2.00, postpaid. 25c additional postage west of Rockies. **CERAMO COMPANY, Jackson, Missouri.**

AFRICAN VIOLETS—Offering "ROOTED CUTTINGS" 10 for $5.00 insured, Postpaid. Strong, healthy, well established. Over 65 varieties. **FREE CATALOG. VIRGINIA LEE GARDENS,** Dept. O, Greensboro, Maryland.

NURSERY STOCK

FRUIT TREES, Berry Plants, Ornamentals—One of America's oldest nurseries—offers a complete line (nearly 400 varieties) of best quality nursery stock at low direct-to-planter prices. Over 80 years' experience guarantees satisfaction. Write today for Free Catalog. **BOUNTIFUL RIDGE NURSERIES,** Box E.10, Princess Anne, Maryland.

DEPENDABLE FRUIT AND NUT TREES, Small Fruits, Ornamentals, and General Nursery Stock. Write for Free Color Catalogue. **CUMBERLAND VALLEY NURSERIES,** Inc., Box 114, McMinnville, Tennessee.

BABY EVERGREENS — SEEDLINGS — TRANSPLANTS — SEEDS. Azalea - Rhododendron Hybrids. All Northern-grown. Bulbs. Free Catalogue. **GIRARD BROS. NURSERY, Geneva, Ohio.**

NUT TREES—Early Bearing for Lawn Shade and Nuts. Many kinds. Mostly Grafted. Mail Dime for Illustrated Catalog. **MICHIGAN NUT NURSERY,** Box 33, Union City, Michigan.

RHODODENDRON (carolinianum), Rhododendron (maximum), Kalmia (laurel), Hemlock (truga). Heavily rooted. 8pg. moss packed. Assorted as desired. 3-4 Ft. 100, $26.50; Doz. $5.50; 50, $16.00. **PREPAID. NATURE'S GREENHOUSE, Tallulah Falls, Ga.**

EVERGREEN LINING-OUT STOCK. Transplants and seedlings. Pine, spruce, fir, Canadian hemlock, arborvitaes, in variety. For growing Christmas trees, windbreaks, hedges, forestry, ornamentals. Prices low as 2c each on quantity orders. Write for price list. **SUNCREST EVERGREEN NURSERIES,** Dept. OG, Johnstown, Pennsylvania.

BOOKS & PUBLICATIONS

FREE..SEND for FREE LIST of BOOKS on HEALTH, DIET, VEGETARIANISM, Nature Cure. We can also supply books on all subjects and in all languages. **AMERICAN LIBRARY SERVICE, 117 West 48th Street, Dept. G. New York City, 19.**

BOOKS. OUT-OF-PRINT. HARD-TO-FIND. Unusual Books. Genealogy books. Any Book. Any subject. **BANKER BOOK CO., Dept. 13, Sherman Oaks, Calif.**

In **"Health through Common Sense with Foods and Facts,"** Robert Bauer, a practicing Food Specialist and Physical Culturist gives us the benefit of his forty years experience in curing human ills with organic foods. This big 9 x 6 - 420 page book is crammed with fresh, vital information you'll find nowhere else. $5.00 prepaid from **ROBERT BAUER,** 345 Paris Ave., S.E., Grand Rapids, Mich.

Read—"CRUDE BLACK MOLASSES", by Cyril Scott—The Natural "Wonder Food". Sufferers of arthritis, high blood pressure, weak heart, ulcers, varicose veins, growths, etc. will marvel at the results. One Dollar Postpaid. Molasses $1.25 Gal. Plus Postage for 14 lbs. **CLINTON KEAGY, New Castle, Pennsylvania.**

"CONCRETE BLOCK HOMES", 32 page booklet on how to build. $1.00. Other Home Building Booklets; $1.00 each. **H. C. LIGHTFOOT,** Civil Engineer, Richboro 17, Penna.

"HOW TO EAT SAFELY IN A POISONED WORLD". Food Poisoning by Chemo-Agriculture. Super-Health Thru Organic Foods. $1.00. Free Circulars. **ORGANIC PUBLICATIONS, Box 131, Morongo Valley, California.**

CIDER VINEGAR—Nature's Great Health promoter. A sure safe cure for over-weight, a variety of ailments and contributes to long life. A booklet highly valuable by Cyril Scott. One Dollar Postpaid. **CLINTON KEAGY, New Castle, Pa.**

"MIRACLES OF MENTAL ACTION." Tremendously important, vital, useful facts explained. Price $1.00. SATISFACTION GUARANTEED. **SCIENTIFIC INFORMATION SERVICE,** 2259 Houghton Ave., S.E., New York City 61.

GARDEN EQUIPMENT

DELIGHT. PLEASURE. Fulfillment of gardening dreams. You win at every turn with our incomparable weeding tools—three of them that make you king on your plot of ground. FREE: Circular on tools and 8 page discussion of weeds and weeding. Write **KRAMER COMPANY,** Dept. 15, Enumclaw, Washington.

EARTHWORMS

DUNG or RED ORCHARD WORMS for better growth of plants, shrubs or trees. Use vigorous worms to build best compost. Instructions with shipment. C.O.D. in U.S.A. 1000—$4.50, 5000 or over $4.00—1000. **R. C. ALLEN,** 1129 Cooper St., Jackson, Michigan.

DR. OLIVER'S Hybrid EARTHWORMS $2.50 per 500 Prepaid. Our aim—Satisfied Customers. Instructions Free. **KEYSTONE EARTHWORM HATCHERY,** 15 N. 30th, Harrisburg, Pa.

TO OBTAIN the most from your soil, use **Earthworms.** Folder and new special offer sent on request. **EDMONDSON HATCHERY,** 118 Mirabeau St., Greenfield, Ohio.

EARTHWORMS. Save on Fertilizer cost. Follow Nature's Way. For Soil Building, better Composting. Write for descriptive folder. **COOLVILLE EARTHWORM FARM,** Coolville 2, Ohio.

GROWFAX is a concentrated Earthworm food. Use diluted or use to fortify low concentration ordinary worm foods. Contains fish meal, E vitamin, and high Protein. $1. postpaid **SCHIFF BIO-FOODS, Jersey City 3, N. J.**

MODEL BOX SETUP, including 600 Soilution earthworms with capsules and culture, $7.00. Fine for beginners. Large starter, $1.25. Complete instructions. **NATURE'S SOIL BUILDERS,** 1544 Spring Garden, Lakewood, Ohio.

EARTHWORMS—Use that famous earthworm developed by the late Dr. Oliver. Herbert Clarence White, writer for Organic Gardening, swears by them. Write for folder. **MIAMI VALLEY EARTHWORM FARM,** 109 E. Beechwood Ave., Dayton 5, Ohio.

SELL EARTHWORMS for soil fertility and for profit. We ship under your name if desired. Particulars free. **EARTHWORMS FARMS CO.,** 6220 Ridgeview Avenue, Baltimore 6, Maryland.

GARDEN SUCCESSFULLY WITH EARTHORMS. WRITE now for FREE instructions and EXCITING OFFER. **CAPITAL EARTHWORM FARM,** Dept. O, 2514 Fourth Street South, Arlington, Virginia (CH 4121)

English MANURE WORMS, Satisfied customers say they're best of all. Convert green manure, garbage, directly into Humus without composting. Free pamphlet tells why. 500-$3.00, $5.00 thousand postpaid. **PHILLIPS WORM FARM,** Box 22, Bessemer, Ala.

"EARTHWORM NEWS", "PROPAGATION & USE", many valuable circulars, secrets of 15 years' experience, FREE. Write for all-time LOW prices now effective. Start successfully, easily. **CALDWELL, Barwick, Georgia.**

1000 HYBRID BREEDERS. In lugs of compost and producing capsules before shipment $10 F.O.B. 1000 packed in moss $7.50 postpaid. **BAKER WORM FARMS,** Griffin, Ga.

TRY REJUVENATED EARTH. Earthworm Castings. Soil Fertilized Nature's Way 35c per No. 2 Can, $1.00 for 3 No. 2 Cans. Approx. 1½ lbs. per Can. Hybrid Earthworms 200 for $1.00. Approx. ½ lb. per Container. Prices Prepaid Plus Postage. **JAM and PAM ORGANIC FARMETTE,** 1705 Central Ave., Augusta, Ga.

DOMESTICATED WORMS put in new will condition your soil wherever you want improved, by spring. Results, gratifying. **Mrs. WM. J. GROTH, Chesterfield Worm Farm, Route 7, Richmond, Va.**

Soilbuilding and Fishbait EARTHWORM BREEDING UNITS: Instructions with cypress breeding box containing food and 500 domesticated red breeder worms. $10. delivered. **HOLLY-OAKS, Lloyd, Florida.**

COMMERCIAL PRODUCTION OF

EARTHWORMS

is our business, and we will gladly share our experience with you. **WRITE TODAY** for our free instructions and price list. We will show you how to increase the fertility and productivity of your soil at a small initial investment. **BASIC MIXTURE** for indoor culture of Earthworms, $3.00 for 5 gal. can. Dry **EARTHWORM CASTINGS** $1.00 qt., $2.75 gal. Add to potted plants for thrilling results. Shipped prepaid. More and better earthworms per dollar at the

STOW EARTHWORM FARM ROUTE 3 KENT, OHIO

HYBRID EARTHWORMS

Our Domesticated Earthworms are already acclimated and conditioned to different types of weather and soil conditions and on the Pacific Coast can be put to work in Compost at any time. They are sold in gallon containers as Culture (eggs, worms and castings) and in units of 100 or more. Now is the time to place your order.

Neptune Beach Earthworm Hatchery

Route 3, Box 264, Ferndale, Washington

Hybrid Earthworms

EARTHWORM CULTURE (eggs, worms and castings) builds and conditions soil, no other fertilizer needed, no hand-turning of compost. They multiply rapidly. DO NOT MIGRATE. Better health for plants and man. Send $1.50 for 100, $15.00 for 1000. Additional savings on larger amounts. FREE information on request. Full instructions with each order.

SUNSET ACRES, GOLD HILL, OREGON

WORMS UNLIMITED

TRADE MARK

OUR NEW PICTURE ILLUSTRATED PAMPHLET FREE! You, too, can raise earthworms successfully, in boxes, in indoor beds or in compost heaps! We furnish the breeders and the "know how"!

POLSON ENTERPRISES

1108 Leland Ave., Chicago 40, Ill.

"SOILUTION"

The name describes the Hybrid Earthworm developed expressly for use in Gardens, Compost and Soil Improvement.

GET the BEST!

Descriptive Literature on Request.

Colorado **Earthworm Hatchery**

2134 Decatur St. Denver 11, Colorado

It's a sensation!

The Organic Method on the Farm

by J. I. RODALE

HERE is a 128-page booklet that for the first time provides farmers with a program for instituting the organic method.

Included is a description of the odorless, laborless type of chicken house in which odors are controlled by bacteria, and from only once in six months.

The subject of nitrogen, phosphorus, and potash is covered in detail, one or two chapters being devoted to each element. Various methods of compost-making on a farm scale are discussed. Information is given for both field crops and orcharding.

Revised edition. Generously illustrated. Price $1.00.

ORGANIC GARDENING, Dept. 1-G, Emmaus, Pa.

Hand modeled pottery.

Baked in original wood fired kiln. Colors in mellow green or brown. Traditional Pennsylvania Dutch design. Order catalog today for all types of useful novelties.

POWDER VALLEY POTTERY

45 S. 17 St. Allentown, Pa.

GRIND YOUR OWN WHOLE GRAIN FLOUR

and you will know that it contains no agene or other preservative or chemical. The flavor alone will tell you how much better it is. A postcard will bring full particulars.

LEE ENGINEERING COMPANY
Milwaukee 3, Wisconsin

SUNFLOWER SEED

ORGANICALLY GROWN

Large screened	10 pounds	$4.50
Medium screened	10 pounds	$3.50

(Prepaid)

C. J. DEBBINK
Route 2, Oconomowoc, Wis.

SELECT SHELLED Sunflower Seeds

$1.85 - lb. $3.50 - 2 lbs. $4.95 - 3 lbs.
(Postpaid)
SATISFACTION GUARANTEED
ORGANIC INDUSTRIES
R. D. No. 1, Dept. O, West Leesport, Penna.

WHEAT GERM

VIVA HEALTH Full FOODS

Natural Source of Vitamin B & E, organic minerals, protein, lecithin, amino acids. Vitamins B and E are necessary for Normal Nerves, Heart, Digestion, Energy. 2 lbs. $1.00 prepaid anywhere in U. S. Write for Free Price List and Circulars.

VEGETABLE PRODUCTS CO.
Box 1204L, Syracuse, N. Y.

INDIAN RIVER CITRUS FRUIT

Natural Standards Consistently Observed

Bushel prepaid to average distances: Temple Oranges—$6.65; Colored Grapefruit—$6.75; Half and Half—$6.70.

Full list on request.

SCHUYLER JACKSON, WABASSO, FLORIDA

QUALITY FRENCH PRUNES

Health food—unprocessed—tree run sizes—no chemicals or commercial fertilizers—full of sugar—distinctive flavor—larger and better—**30c** per pound in minimum ten pound lots or more—charges *prepaid* anywhere—no C.O.D.'s.

A. C. MARSH
926 Shannon Road Los Gatos, Calif.

Eventually you will buy "THE MASTER'S GARDEN" *book*

Tells how to make money in your own back-yard-garden. With a Pkt. of the Magic Flower Plant seeds both only $1.00 details free.

LIGHTNING SPEED MFG. CO.
Box 113-O.G. Streator, Illinois

Every Organic Gardener Should Study
The New Science of ORGANIC NUTRITION
Home Study Course by W. B. Raymond, A.B., M.A., Ph.D. Nutritional Biochemist. Shows New Way to Super-Health by Alkaline Organic "Hunza" Diet. A New Science of Nutrition Based on New Organic Viewpoint. Send $2.00 for first month's 4 weekly lessons. Free Circular. Also send $1.00 for "HOW TO EAT SAFELY IN A POISONED WORLD" Book on Food Poisoning by Chemical Fertilizers and Sprays & Super-Health Thru Organic Foods. **FREE CIRCULARS:** "Sesame Seeds, Wonder Food & Price List Sesame Products", "Organic Farming with Powdered Rocks", "Organic Farm Opportunities in Subtropical Florida."
ORGANIC PUBLICATIONS, Box 131, Morongo Valley, Calif.

MELVIN C. KLEPPINGER, CERAMICS

Quaint Personalized Marriage Plates with bride and bridegroom names baked in. Decorated with Penna. Dutch Floral Design. Glazed with 3 colors. Size 10½". Price, $12.00 postpd.

P. O. Box 187 Emmaus, Pa.

HYBRID EARTHWORMS: Mature size, hand picked. $4.50 per thousand, delivered. Culture instructions free. Live delivery guaranteed. BREMER'S EARTHWORM HATCHERY, 330 West La Fayette St., La Grange, Texas.

DOMESTICATED EARTHWORMS to build your waste materials into organic rich soil. Call or write Mrs. L. JONES, 1515 E. 76th, Seattle 5, Wash.

PROPER BALANCE MAKES PERFECT RESULTS. Try our domesticated earthworms and see for yourself! Write today! VIRGINIA EARTHWORM FARM, Cherry Hill, Route 4, Roanoke, Virginia.

"HARNESSING THE EARTHWORM." Life story of the author, "An Earthworm Turned His Life," mailed free. Write DR. THOS. J. BARRETT, Dept. 24, Sun Valley, Calif.

FERTILIZERS—SOIL CONDITIONERS

SPHAGNUM MOSS Large Bales, $2.50 bale burlapped. Orders of 5 or more shipped. Shipping charges not included. Mrs. MARY BARONE, 830 White Horse Pike, Elwood, New Jersey.

POULTRY MANURE: 100 lbs. in 50-lb. bags $2.00; 500 lbs. in 50-lb. bags $9.00; 1000 lbs. in 50-lb. bags $16.00; 2000 lbs. in 50-lb. bags $25.00. DIAMOND STATE EVERGREEN CO., Milton, Del.

SMALL assorted mineral STONES for house plants. 100 for $1.00 Delivered. GOOD EARTH DEPOT, 303 Saginaw St., Saginaw, Michigan.

BIO-GRO: New Marvelous concentrated liquified organic fish fertilizer. Not an emulsion, no unpleasant odor. Directions with quart postpaid $1.50. PRIMROSE ACRES, Gladstone, 2, Oregon. America's Primrose Seed Growers.

RUHM PHOSPHATE & CHEMICAL CO. (Canadian Branch) Guaranteed 30% Phosphate (Pure Ground Rock; Organic Fertilizer) For information write to H. F. SCOTT, Domville, Ont., Canada.

FOODS

ALFALFA TABLETS for natural minerals..$2. (200 for trial $1.) Dehydrated Instant Vegetable Broth (ten vegetables) $1. Insta'Churt (for making Instant lactic milk)—$2 cup size $1. Just add to milk. 100 Forti-'Kelp Tablets, a fortified dehydrated sea vegetable, highest in sea minerals concentration!—$1. Dehydrated Sweet Buttermilk—just add a tablespoonful to a cup of water—rich in food calcium and non-fattening..10 oz. Jar $1. 5 lbs. bulk $3.75. Buttermilk Whey Powder changes intestinal floras, suppresses colonic putrefaction, mildly laxative..15 oz. Jar $1. Use these protective foods generously. SCHIFF BIO-FOODS, 80 Montgomery, Jersey City, N. J.

DELICIOUS Unsulphured DRIED FRUITS, 10 lb. cartons: Fancy Calimyrna Figs $3.85, Jumbo Black Mission Figs $2.75, Brown Kadota Figs $2.65, Large Peaches or Pears $3.65, Large, Select, Shelled Almonds, 5 lbs. $3.85, 10 lbs. $7.30. Unheated California Virgin Olive Oil, Flavorful, Gallon $4.85, Quart $1.35. Express Shipping Charges collect. Please, no C.O.D.'s. S. H. JAFFE (M), Lakeside, California.

Minnesota's fines mild, Clover HONEY with the special flavor. 5 p... pail $1.50 postpaid. 60 pound can 7.50 F.O.B. ROBERT E. DENNY, Roseau, Minnesota.

FRUIT fit to eat, tree ripened, natural color, juice oranges or grapefruit or both $2.25 per bushel. Express Collect. W. D. EDWARDS & SON, Lake Como, Fla.

OH HONEY Try it. Extracted, raw. No chemicals used. 5 lb. pail $1.75, 10 lbs. $3.50, plus postage. Write for special rates. GERAD C. HEYNE, Sun River, Mont.

EAT DELICIOUS HONEY for health, energy, vitamins and minerals. 5 pounds $2.00. Write for quantity prices. MURDOCK FARMS, Farmington, Kentucky.

A HONEY of a NEW YEAR to EVERYBODY, whether you wrote some of these beautiful letters, each and every day of 1949, or not. For I hope you will join our family, and then write too: Send me more, of your fine honey, your most delicious, we had a feast, it's the best we ever tasted. You that have written them, know that they are true. You made me happy throughout the year, I can but thank you and wish you a "Honey of a New Year". Watch monthly for announcements of New Ambrosial Treats. Meanwhile we still mail our 1949 Successes: Primeval Flowers, Buckwheat and Clover (Spray-free Honeys) 3 lbs. $1.25 (3 cans assorted $3.25); 6 lbs. $2.10; 12 lbs. (gallon) $4.00; 60 lbs. $14.00. Prepaid 3d. zone against check. C.O.D. plus postage. Ask for "Oversea Gift-Parcel Rates". A. P. Knothe, Apiarist, SMITHTOWN BEE FARM, Smithtown, N. Y.

DELICIOUS WILD FLOWER HONEY. Direct from the Bee to you. Gathered from flowers planted by nature on healthy soil in the beautiful Alleghany mountains. It's different—seldom found on the market. To get a taste—order today. FREE honey recipes. Two 5-pound pails postpaid $4.23. Twenty cents additional west of Mississippi. Send check or money order today. DAVID J. JOHNSON, Clarendon, Pa.

PAPER SHELL PECANS. Delicious taste. Southern grown. Makes excellent gifts. 5 pounds $2.00; 25 pounds $8.75. MURDOCK PLANTATIONS, Farmington, Kentucky.

VITAMIN E (natural) highest potency, 100 mg. Special—100 capsules $4.25. VITAMIN A (natural), 50,000 units per capsule. 100..$3.50. Popular VITAMIN B COMPLEX (natural), 95c per 100 capsules. Direct sales make these prices possible. LEVITT DRUGS, Box 718, Woodmere, N. Y.

Virgin Cold Pressed WHEAT GERM OIL Capsules. The Essence of Life. $3.50 per 1000 3-minims Capsules Prepaid. Guaranteed high quality. NU-AGE PRODUCTS, 1926 W. Railroad St., Loupurex, Penna.

BUSINESS OPPORTUNITIES

WE of MELBOURNE VILLAGE want to thank you, the editors and readers of "Organic Gardening" for your truly remarkable help in the development of this planned community for productive homes and creative living. More than a thousand of you are now corresponding with us; almost our entire membership has been recruited from your ranks; and we believe that this rapidly growing community will make a significant contribution to the organic gardening movement here in Florida. Write us; or better still, visit us—this is really your community! THE AMERICAN HOMESTEADING FOUNDATION, Box 696, Melbourne, Florida.

DELIGHTFUL PLANS. Australia, South America. Free Book "372 Unusual Worldwide Businesses." $800 month reported. Work home (U.S.A.)! Get surprise! PUBLISHERS—OZ, Carlsbad, Calif.

DISTRIBUTE SUBSCRIPTION-GETTING BOOKLETS. Help spread the organic message. Nothing to sell. Merely hand out these booklets to likely subscriber prospects of Organic Gardening Magazine. Coded coupon permits us to trace source of subscription to your efforts. Liberal commission. See page 21 for complete story.

WOULD YOU pay 3% first $350 made? Book '505 Odd, Successful Enterprises' free. Work home. Expect something odd. PACIFIC, Oceanside, Calif.

IRISH WOOLENS

THINKING ABOUT Seeds? And your Spring clothes? Choose your color, pattern, weight now for Spring delivery of Avoca Handwoven Irish Woolens. CAROL BROWN, Putney 24, Vt.

MISCELLANEOUS

CLOGGED and OVERFLOWING CESSPOOLS and Septic Tanks are a health menace. No need to employ expensive pumping methods. Simply apply 100 lb. drum of SUB-SOLVENT to reduce the solid content and clean the pores in the ground surrounding the cesspool, thereby allowing the proper leaching of the water. Write for descriptive literature and how to start fermentation in your cesspool or septic tank. ELECTRIC SEWER CLEANING COMPANY, 294 Lincoln St., Allston 34, Mass.

BIOLOGICAL HOBBY CATALOG 10c. Reptile List 5c. Moore's Book Wild Pets $5.00. Hamsters $2.75 pair. Alligator $2.50. Chameleon 35c. Turtle 35c. Mealworms 50c hundred. QUIVIRA SPECIALTIES, Topeka, Kansas.

FOR SALE AND TO RENT

FLORIDA Organic Orchard and Gardens for sale with 15 Cottages to rent. Great Bargain at $25,000, terms. Also nice home place, 10 acres, etc. $3,000, terms. Also country home, 60 acres, $4,500. S. GIBSON, Ft. Walton, Fla.

FARM—5 acres all tillable; sandy-loam. Wonderful country for all berries, peaches, vegetables, chickens. Beautiful 6 room house with all improvements. Garage, chicken house, outbuildings. 3 minutes to town of 10,000 population. Price $3500. SABONJIAN, 333 South Chew Road, Hammonton, New Jersey.

HELP WANTED

AVIATION WORK—Engineering and Mechanics—Top salaries—Big demand for trained men—Qualify yourself—Free catalog, job lists and full information. Write: CAL-AERO TECHNICAL INSTITUTE, Dept. C-7, Grand Central Air Terminal, Glendale 1, California.

Organic Trading Post

If you wish to buy or sell organically-grown foods send advertising copy to Organic Gardening, Emmaus, Pa. The purpose of the Trading Post is to bring together the buyer and seller of organically-grown food products. Rates are 2½c a word. Minimum 25 words, or $5.25. Payable in advance. Include name and address in word count.

ORGANIC TRADING POST

Solar Nectar NAVEL ORANGES grown organically in mineral-rich soil of Sierra foothills. No chemicals used in growing or processing. Tree-ripe (more natural sugar) Sun-ripe (higher "C" content). Guaranteed against spoilage. If any loss, deduct from next order what you think is right. Choice fruit—assorted sizes. $5.00 box F.O.B. HENRY CARDELL, Lincoln, Calif.

TREE RIPENED and TREE COLORED navel and other oranges mixed. ORGANICALLY GROWN, $4.00 per bushel f.o.b. CARTWRIGHT GROVES, Carrizo Springs, Texas.

FOURTH YEAR for WALNUT ACRES home-processed, organic foodstuffs. Fresh, stoneground wheat, rye, corn, buckwheat flours and cereals; honey, jam. PAUL KEENE, Penns Creek, Penna.

SUNFLOWER SEED—Organically grown. 65 cents a pound. 70 cents a pound west of the Mississippi. RODALE PRESS, Emmaus, Pa.

ORGANICALLY GROWN WHEAT processed into 100% whole wheat and cereal containing all the original vitamins and mineral salts of the wheat berry. Trial 5 lb. bags of flour or cereal sent postpaid for $1.00. LOU-HELEN RANCH, Davison, Mich.

Readers' Correspondence

(*Continued from page 60*)

dia) indicate an alkaline soil. Soil reaction can also be tested with litmus paper, or by using the well known indicators, sometimes advertised in this magazine.

Moss on the soil indicates either poor drainage, acidity, or deficiency of certain elements. A good rule to follow is that where weeds grow, vegetables and other crop plants will also grow.

—o—

Compost Starters in the New Organic Method

THE question may be asked, in the new organic method, where do the bacteria activator products such as ACTIVO, or BCA fit in? In the new organic method there will be some compost making by the enclosed method. Temporarily these activators can be used in such enclosed pits. They will do a great deal of good, but eventually there will be special activators made that will contain the kinds of bacteria that will thrive under the enclosed conditions.

I can see a new use for such activators as they are at present constituted which will make them extremely useful. Where green matters and manures are applied direct to garden soil they can be saturated with a liquid solution of activators which will speed the breakdown of the raw organic matter. It will help a great deal if new organic matter is thoroughly wetted down anyhow, and since the bacteria activators can be so applied it makes it quite convenient.

Mulch composting, I am sure, will come to be a big thing in the new organic method and it will be productive of excellent results if the ACTIVO or BCA is used in laying down such mulches.

ORGANIC GARDENING INDEX

July to December 1949 Inclusive

AUTHORS

	Month	Page
Bedier, Julie		
How to Have Plenty of Phlox and Bleeding Hearts	Sept.	47
Benton, Nancy E.		
Grow Tomatoes Without Transplanting	July	52
Bost, Ira T.		
Organic Methods Benefit Grapes	Nov.	29
Campbell, Mrs. Noah B.		
Signs of Autumn—An Arrangement	Nov.	23
Chalfin, Eleanor Foster		
Lush Herbs	July	22
Crawshaw, Gilbert R.		
Harnessing Our Songbirds	Nov.	35
DeLamater, Boyd E.		
A Leaf Chopper	Sept.	38
Daughtry, Dr. J. H.		
Minerals from the Sea	July	41
Edwards, S. W.		
Small Experiment with Potatoes	Oct.	28
Eweson, Eric		
Can Synthetic Food Substitutes Solve our Food Problem?	Oct.	30
Eyster, Dr. William H.		
Blue-Flowered Perennials	Oct.	49
Botany for the Gardener (20)—Peat and the Peat Bog	July	44
Botany for the Gardener (21)—Mosses	Aug.	37
Botany for the Gardener (22)—Ferns	Sept.	26
Cabbage Maggots	July	52
Control Potato Scab	Oct.	50
Fragrance	Oct.	49
How To Plant Bulbs	Oct.	19
How To Propagate Evergreens from Cuttings	Nov.	24
Increase the Blooming Period	Oct.	49
Lilacs	Oct.	49
Lush Vegetables In Clay	July	52
Mixed Gardens	Oct.	50
New Horizons In Composting	Dec.	50
Perennials That Should Be Grown From Cuttings	Oct.	49
Permanent Formal Beds	Oct.	49
Seminar on Acidity and Alkalinity	Dec.	51
Seminar on Insects	Oct.	28
Seminar on Plant Diseases	Nov.	38
Sweet Corn for Summer's End	July	32
Sweet Peas Grow in Emmaus	Sept.	32
Unusual But Valuable Foods	Oct.	50
Vines In The Garden	Oct.	50
Winter Storage of Vegetables	Aug.	19
Eyster, Mrs. William H.		
The Fireplace	July	18
Foote, Doreen		
Seed Salvage Pays	Nov.	31
Griffiths, Frances		
Compost and Vegetables Invade the Porch	Nov.	37
Hamilton, W. R.		
Make a Home Garden the Easy Way	Nov	52
Hersh, Mrs. Lloyd I.		
A Christmas Centerpiece	Dec.	28
Jackson, Norris A.		
Rock-Bottom Apples	Aug.	40
Johnson, J. A.		
Freezing of Earthworms	Sept.	43
McLellan, Kenneth		
Protect Seedlings Against Rabbits	Nov.	32
Pfeiffer, Dr. Ehrenfried		
Biodynamic Plants and Solutions	July	35
Know the Vitamins that you can Produce	Sept.	18
The Ideal Compost	July	19
Pim, Sheila		
Shakespeare on Compost	Oct.	51
Reinsmith, Winton H.		
Stabilizing Growth With Mulch	Aug.	32
Rodale, J. I.		
A Letter And An Answer	Dec.	22
Cancer—Part III	July	12
Cancer—Part IV	Aug.	12
Cancer—Part V	Sept.	12
Cancer—Part VI	Oct.	12
Cancer—Part VII	Nov.	14
Cancer—Part VIII	Dec.	14
Enzativator—A New Development In The Organic Method	Dec.	18
Enzactivator—A New Development In The Organic Method	Dec.	18
How To Apply the New Organic Method in the Garden	Dec.	29
Lawns and Lawn Grasses	Aug.	30
Miscellany	July	24
Miscellany	Aug.	26
Miscellany	Sept.	22
Miscellany	Oct.	15
Miscellany	Nov.	19
Radical Change in Organic Method	Dec.	26
Seminar on Compost—When to Make It	Sept.	50
Sir Albert Howard Encouraged Dhar	Dec.	55
Scott, Dr. Paul		
Ground Moles and Their Control	July	30
Root System of Beans	Oct.	47
Root System of the Beet	Nov.	48
Root System of Vegetable Plants	Sept.	45
Selvi, Dr. Charles		
Enclosed Manure Pits	Dec.	39
Stahr, Alden		
Two-by-Four Farm	Aug.	42
Steiner, F. D.		
How a City Solved Its Garbage Problem	Aug.	23
Treby, Miss Hilda		
Table Arrangement	Aug.	18
Walshaw, Edward R.		
Jerusalem Artichoke	Sept.	36
Lilium Superbum	Oct.	36
Wason, Robert M.		
Grinding Leaves	Oct.	35
Whallon, Archer D.		
The Small-Fruited Tomato	Oct.	26
Wickenden, Leonard		
I Don't Believe That (A series of articles)	Nov.	27
Wier, Mrs. R.		
Bracken and Wood Ash for Potatoes	July	52
Wilde, E. I.		
Color Combination With Phlox	Aug.	34
Wittrock, G. L.		
Basket of Gold	Aug.	44
Lore of our Native Witch-Hazel	Oct.	23
Spiked Speedwell	Sept.	30

SUBJECTS

A			B		
A Letter And An Answer	Dec.	22	Bananas	Oct.	3
Acidity And Alkalinity	Dec.	51	Basket of Gold	Aug.	44
Amaryllis, Hardy	Nov.	57	Better than Medicine	Nov.	22
Ants In The Driveway	Aug.	61	Bill Submitted to Congress to Investigate Commercial Fertilizer, A	Aug.	42
Aphids On Plum Trees	Aug.	59	Biodynamic Plants and Solutions	July	35
Apples For Sale	Nov.	59	Birds In The Organic Garden	Dec.	9
Artichoke, Jerusalem	Sept.	36	Blueberries	Sept.	56
Artificials, Do They Give Greater Yields	Aug.	28	Blueberries, Compost For	July	60
Asparagus From Seeds	July	58	Botany For The Organic Gardener Peat and the Peat Bog (20)	July	44
Autumn, Signs of	Nov.	23			

GRIND YOUR OWN WHOLE GRAIN FLOUR

and you will know that it contains no agene or other preservative or chemical. The flavor alone will tell you how much better it is. A postcard will bring full particulars.

LEE ENGINEERING COMPANY

Milwaukee 3, Wisconsin

SUNFLOWER SEED

ORGANICALLY GROWN

Large screened	10 pounds	$4.50
Medium screened	10 pounds	$3.50

(Prepaid)

C. J. DEBBINK

Route 2, Oconomowoc, Wis.

SELECT SHELLED Sunflower Seeds

$1.85 - lb. $3.50 - 2 lbs. $4.95 - 3 lbs.

(Postpaid)

SATISFACTION GUARANTEED

ORGANIC INDUSTRIES

R. D. No. 1, Dept. O. West Leesport, Penna.

WHEAT GERM

Natural Source of Vitamin B & E, organic minerals, protein, lecithin, amino acids. Vitamins B and E are necessary for Normal Nerves, Heart, Digestion, Energy. 2 lbs. $1.00 prepaid anywhere in U. S. Write for Free Price List and Circulars.

VEGETABLE PRODUCTS CO.
Box 1204L, Syracuse, N. Y.

INDIAN RIVER CITRUS FRUIT

Natural Standards Consistently Observed

Bushel prepaid to average distance: Temple Oranges—$6.65; Colored Grapefruit—$6.75; Half and Half—$6.70.

Full list on request.

SCHUYLER JACKSON, WABASSO, FLORIDA

QUALITY FRENCH PRUNES

Health food—unprocessed—tree run sizes—no chemicals or commercial fertilizers—full of sugar—distinctive flavor—larger and better—**30c** per pound in minimum ten pound lots or more—charges *prepaid* anywhere—no C.O.D.'s.

A. C. MARSH
926 Shannon Road Los Gatos, Calif.

Eventually you will buy "THE MASTER'S GARDEN" *book*

Tells how to make money in your own back-yard-garden. With a Pkt. of the Magic Flower Plant seeds both only $1.00 details free.

LIGHTNING SPEED MFG. CO.

Box 115-O.G. Streator, Illinois

Every Organic Gardener Should Study
The New Science of ORGANIC NUTRITION
Home Study Course by W. B. Raymond, A.B., M.A., Ph.D. Nutritional Biochemist. Shows New Way to Super-Health by Alkaline Organic "Hunza" Diet. A New Science of Nutrition Based on New Organic Viewpoint. Send $2.00 for first month's 4 weekly lessons. Free Circular. Also send $1.00 for "HOW TO EAT SAFELY IN A POISONED WORLD" Book on Food Poisoning by Chemical Fertilizers and Sprays & Super-Health Thru Organic Foods. **FREE CIRCULARS:** "Sesame Seeds, Wonder Food & Price List Sesame Products", "Organic Farming with Powdered Rocks", "Organic Farm Opportunities in Subtropical Florida."
ORGANIC PUBLICATIONS, Box 131, Morongo Valley, Calif.

MELVIN G. KLEPPINGER, CERAMICS

Quaint Personalized Marriage Plates with bride and bridegroom names baked in. Decorated with Penna. Dutch Floral Design. Glazed with 3 colors. Size 10½". Price, $12.00 postpd.

P. O. Box 187 Emmaus, Pa.

HYBRID EARTHWORMS: Mature size, hand picked. $4.50 per thousand, delivered. Culture instructions free. Live delivery guaranteed. **BREMER'S EARTHWORM HATCHERY, 339 West La Fayette St., La Grange, Texas.**

DOMESTICATED EARTHWORMS to build your waste materials into organic rich soil. Call or write **Mrs. L. JONES, 1515 E. 76th, Seattle 5, Wash.**

PROPER BALANCE MAKES PERFECT RESULTS. Try our domesticated earthworms and see for yourself! Write today! **VIRGINIA EARTHWORM FARM, Cherry Hill, Route 4, Roanoke, Virginia.**

"HARNESSING THE EARTHWORM." Life story of the author, "An Earthworm Turned His Life," mailed free. Write **DR. THOS. J. BARRETT, Dept. 24, Sun Valley, Calif.**

FERTILIZERS—SOIL CONDITIONERS

SPHAGNUM MOSS Large Bales, $2.50 bale burlapped. Orders of 5 or more shipped. Shipping charges not included. **Mrs. MARY BARONE, 838 White Horse Pike, Elwood, New Jersey.**

POULTRY MANURE: 100 lbs. in 50-lb. bags $2.00; 500 lbs. in 50-lb. bags $9.00; 1000 lbs. in 50-lb. bags $16.00; 2000 lbs. in 50-lb. bags $25.00. **DIAMOND STATE EVERGREEN CO., Milton, Del.**

SMALL assorted mineral STONES for house plants. 100 for $1.00 Delivered. **GOOD EARTH DEPOT, 303 Saginaw St., Saginaw, Michigan.**

BIO-GRO: New Marvelous concentrated liquified organic fish fertilizer. Not an emulsion, no unpleasant odor. Directions with quart postpaid $1.50. **PRIMROSE ACRES, Gladstone, 2, Oregon.** America's Primrose Seed Growers.

RUHM PHOSPHATE & CHEMICAL CO. (Canadian Branch) Guaranteed 30% Phosphate (Pure Ground Rock; Organic Fertilizer) For information write to **H. F. SCOTT, Demville, Ont., Canada.**

FOODS

ALFALFA TABLETS for natural minerals..$2. (200 for trial $1.) Dehydrated Instant Vegetable Broth (ten vegetables) $1. Insta'Churt (for making Instant lactic milk)—$2 cup size $1. Just add to milk. 100 Forti-'Kelp Tablets, a fortified dehydrated sea vegetable, highest in sea minerals concentration!—$1. Dehydrated Sweet Buttermilk—just add a tablespoonful to a cup of water—rich in food calcium and non-fattening..10 oz. Jar $1. 5 lbs. bulk $3.75. Buttermilk Whey Powder changes intestinal floras, suppresses colonic putrefaction, mildly laxative..15 oz. Jar $1. Use these protective foods generously. **SCHIFF BIO-FOODS, 89 Montgomery, Jersey City, N. J.**

DELICIOUS Unsulphured DRIED FRUITS, 10 lb. cartons: Fancy Calimyrna Figs $3.85, Jumbo Black Mission Figs $2.75, Brown Kadota Figs $2.65, Large Peaches or Pears $3.65. Large, Select, Shelled Almonds, 5 lbs. $3.85, 10 lbs. $7.20. Unheated California Virgin Olive Oil, Flavorful, Gallon $4.85, Quart $1.35. Express Shipping Charges collect. Please, no C.O.D.'s. **S. H. JAFFE (M), Lakeside, California.**

Minnesota's fines mild, Clover **HONEY** with the special flavor. 5 pounds pail $1.50 postpaid. 60 pound can 7.50 F.O.B. **ROBERT E. DENNY, Roseau, Minnesota.**

FRUIT fit to eat, tree ripened, natural color, juice oranges or grapefruit or both $2.25 per bushel. Express Collect. **W. D. EDWARDS & SON, Lake Como, Fla.**

OH HONEY Try it. Extracted, raw. No chemicals used. 5 lb. pail $1.75, 10 lbs. $3.50, plus postage. Write for special rates. **GERAD C. HEYNE, Sun River, Mont.**

EAT DELICIOUS HONEY for health, energy, vitamins and minerals. 5 pounds $2.00. Write for quantity prices. **MURDOCK FARMS, Farmington, Kentucky.**

A HONEY of a NEW YEAR to EVERYBODY, whether you wrote some of these beautiful letters, each and every day of 1949, or not. For I hope you will join our family, and then write too: Send me more, of your fine honey, your most delicious, we had a feast, it's the best we ever tasted. You that have written them, know that they are true. You made me happy throughout the year. I can but thank you and wish you a "Honey of a New Year". Watch monthly for announcements of New Ambrosial Treats. Meanwhile we still mail our 1949 Successes: Primeval Flowers, Buckwheat and Clover (Spray-free Honeys) 3 lbs. $1.25 (3 cans assorted $3.25); 6 lbs. $2.10; 12 lbs. (gallon) $4.00; 60 lbs. $14.00. Prepaid 2d. zone against check. C.O.D. plus postage. Ask for "Oversea Gift-Parcel Rates". **A. P. Knothe, Apiarist, SMITHTOWN BEE FARM, Smithtown, N. Y.**

DELICIOUS WILD FLOWER HONEY. Direct from the Bee to you. Gathered from flowers planted by nature on healthy soil in the beautiful Alleghany mountains. It's different—seldom found on the market. To get a taste—order today. **FREE** honey receipes. Two 5-pound pails postpaid $4.22. Twenty cents additional west of Mississippi. Send check or money order today. **DAVID J. JOHNSON, Clarendon, Pa.**

PAPER SHELL PECANS. Delicious taste. Southern grown. Makes excellent gifts. 5 pounds $2.00; 25 pounds $8.75. **MURDOCK PLANTATIONS, Farmington, Kentucky.**

VITAMIN E (natural) highest potency, 100 mg. Special —100 capsules $4.25. VITAMIN A (natural), 50,000 units per capsule. 100..$3.50. Popular VITAMIN B COMPLEX (natural), 95c per 100 capsules. Direct sales make these prices possible. **LEVITT DRUGS, Box 718, Woodmere, N. Y.**

Virgin Cold Pressed WHEAT GERM OIL Capsules. The Essence of Life. $3.50 per 1000 3-minims Capsules Prepaid. Guaranteed high quality. **NU-AGE PRODUCTS, 1926 W. Railroad St., Loupurex, Penna.**

BUSINESS OPPORTUNITIES

WE of MELBOURNE VILLAGE want to thank you, the editors and readers of "Organic Gardening" for your truly remarkable help in the development of this planned community for productive homes and creative living. More than a thousand of you are now corresponding with us; almost our entire membership has been recruited from your ranks; and we believe that this rapidly growing community will make a significant contribution to the organic gardening movement here in Florida. Write us; or better still, visit us—this is really your community! **THE AMERICAN HOMESTEADING FOUNDATION, Box 696, Melbourne, Florida.**

DELIGHTFUL PLANS, Australia, South America. Free Book "372 Unusual Worldwide Businesses." $300 month reported. Work home (U.S.A.)! Get surprise! **PUBLISHERS—OZ, Carlsbad, Calif.**

DISTRIBUTE SUBSCRIPTION-GETTING BOOKLETS. Help spread the organic message. Nothing to sell. Merely hand out these booklets to likely subscriber prospects of **Organic Gardening Magazine.** Coded coupon permits us to trace source of subscription to your efforts. Liberal commission. **See page 21 for complete story.**

WOULD YOU pay 3% first $350 made? Book '505 Odd, Successful Enterprises' free. Work home. Expect something odd. **PACIFIC, Oceanside, Calif.**

IRISH WOOLENS

THINKING ABOUT Seeds? And your Spring clothes? Choose your color, pattern, weight now for Spring delivery of **Avoca Handwoven Irish Woolens. CAROL BROWN, Putney 24, Vt.**

MISCELLANEOUS

CLOGGED and OVERFLOWING CESSPOOLS and Septic Tanks are a health menace. No need to employ expensive pumping methods. Simply apply 100 lb. drum of **SUB-SOLVENT** to reduce the solid content and clean the pores in the ground surrounding the cesspool, thereby allowing the proper leaching of the water. Write for descriptive literature and how to start fermentation in your cesspool or septic tank. **ELECTRIC SEWER CLEANING COMPANY, 294 Lincoln St., Allston 34, Mass.**

BIOLOGICAL HOBBY CATALOG 10c. Reptile List 5c. Moore's Book Wild Pets $5.00. Hamsters $2.75 pair. Alligator $2.50. Chameleon 35c. Turtle 25c. Mealworms 50c hundred. **QUIVIRA SPECIALTIES, Topeka, Kansas.**

FOR SALE AND TO RENT

FLORIDA Organic Orchard and Gardens for sale with 15 Cottages to rent. Great Bargain at $25,000, terms. Also nice home place, 10 acres, etc. $3,000, terms. Also country home, 60 acres, $4,500. **S. GIBSON, Ft. Walton, Fla.**

FARM—5 acres all tillable; sandy-loam. Wonderful country for all berries, peaches, vegetables, chickens. Beautiful 6 room house with all improvements. Garage, chicken house, outbuildings. 2 minutes to town of 10,000 population. Price $3500. **SABONJIAN, 333 South Chew Road, Hammonton, New Jersey.**

HELP WANTED

AVIATION WORK—Engineering and Mechanics—Top salaries—Big demand for trained men—Qualify yourself—Free catalog, job lists and full information. Write: **CAL-AERO TECHNICAL INSTITUTE, Dept. C-7, Grand Central Air Terminal, Glendale 1, California.**

Organic Trading Post

If you wish to buy or sell organically-grown foods send advertising copy to Organic Gardening, Emmaus, Pa. The purpose of the Trading Post is to bring together the buyer and seller of organically-grown food products. Rates are 2¢ a word. Minimum 25 words, or $5.25. Payable in advance. Include name and address in word count.

ORGANIC TRADING POST

Solar Nectar NAVEL ORANGES grown organically in mineral-rich soil of Sierra foothills. No chemicals used in growing or processing. Tree-ripe (more natural sugar) Sun-ripe (higher "C" content). Guaranteed against spoilage. If any loss, deduct from next order what you think is right. Choice fruit—assorted sizes. $5.00 box F.O.B. **HENRY CARDELL, Lincoln, Calif.**

TREE RIPENED and TREE COLORED navel and other oranges mixed. ORGANICALLY GROWN, $4.00 per bushel f.o.b. **,CARTWRIGHT GROVES, Carrizo Springs, Texas.**

FOURTH YEAR for WALNUT ACRES home-processed, organic foodstuffs. Fresh, stoneground wheat, rye, corn, buckwheat flours and cereals; honey, jam. **PAUL KEENE, Penns Creek, Penna.**

SUNFLOWER SEED—Organically grown. 65 cents a pound. 70 cents a pound west of the Mississippi. **RODALE PRESS, Emmaus, Pa.**

ORGANICALLY GROWN WHEAT processed into 100% whole wheat and cereal containing all the original vitamins and mineral salts of the wheat berry. Trial 5 lb. bags of flour or cereal sent postpaid for $1.00. **LOU-HELEN RANCH, Davison, Mich.**

Readers' Correspondence

(*Continued from page 60*)

dia) indicate an alkaline soil. Soil reaction can also be tested with litmus paper, or by using the well known indicators, sometimes advertised in this magazine.

Moss on the soil indicates either poor drainage, acidity, or deficiency of certain elements. A good rule to follow is that where weeds grow, vegetables and other crop plants will also grow.

—o—

Compost Starters in the New Organic Method

THE question may be asked, in the new organic method, where do the bacteria activator products such as ACTIVO, or BCA fit in? In the new organic method there will be some compost making by the enclosed method. Temporarily these activators can be used in such enclosed pits. They will do a great deal of good, but eventually there will be special activators made that will contain the kinds of bacteria that will thrive under the enclosed conditions.

I can see a new use for such activators as they are at present constituted which will make them extremely useful. Where green matters and manures are applied direct to garden soil they can be saturated with a liquid solution of activators which will speed the breakdown of the raw organic matter. It will help a great deal if new organic matter is thoroughly wetted down anyhow, and since the bacteria activators can be so applied it makes it quite convenient.

Mulch composting, I am sure, will come to be a big thing in the new organic method and it will be productive of excellent results if the ACTIVO or BCA is used in laying down such mulches.

ORGANIC GARDENING INDEX

July to December 1949 Inclusive

AUTHORS

	Month	Page
Bedier, Julie		
How to Have Plenty of Phlox and Bleeding Hearts	Sept.	47
Benton, Nancy E.		
Grow Tomatoes Without Transplanting	July	52
Bost, Ira T.		
Organic Methods Benefit Grapes	Nov.	29
Campbell, Mrs. Noah B.		
Signs of Autumn—An Arrangement	Nov.	23
Chalfin, Eleanor Foster		
Lush Herbs	July	22
Crawshaw, Gilbert R.		
Harnessing Our Songbirds	Nov.	35
DeLamater, Boyd E.		
A Leaf Chopper	Sept.	38
Daughtry, Dr. J. H.		
Minerals from the Sea	July	41
Edwards, S. W.		
Small Experiment with Potatoes	Oct.	28
Eweson, Eric		
Can Synthetic Food Substitutes Solve our Food Problem?	Oct.	30
Eyster, Dr. William H.		
Blue-Flowered Perennials	Oct.	49
Botany for the Gardener (20)—Peat and the Peat Bog	July	44
Botany for the Gardener (21)—Mosses	Aug.	37
Botany for the Gardener (22)—Ferns	Sept.	26
Cabbage Maggots	July	52
Control Potato Scab	Oct.	50
Fragrance	Oct.	49
How To Plant Bulbs	Oct.	19
How To Propagate Evergreens from Cuttings	Nov.	24
Increase the Blooming Period	Oct.	49
Lilacs	Oct.	49
Lush Vegetables In Clay	July	52
Mixed Gardens	Oct.	50
New Horizons In Composting	Dec.	50
Perennials That Should Be Grown From Cuttings	Oct.	49
Permanent Formal Beds	Oct.	49
Seminar on Acidity and Alkalinity	Dec.	51
Seminar on Insects	Oct.	28
Seminar on Plant Diseases	Nov.	38
Sweet Corn for Summer's End	July	32
Sweet Peas Grow in Emmaus	Sept.	32
Unusual But Valuable Foods	Oct.	50
Vines In The Garden	Oct.	50
Winter Storage of Vegetables	Aug.	19
Eyster, Mrs. William H.		
The Fireplace	July	18
Foote, Doreen		
Seed Salvage Pays	Nov.	31
Griffiths, Frances		
Compost and Vegetables Invade the Porch	Nov.	37
Hamilton, W. R.		
Make a Home Garden the Easy Way	Nov	52
Hersh, Mrs. Lloyd I.		
A Christmas Centerpiece	Dec.	28
Jackson, Norris A.		
Rock-Bottom Apples	Aug.	40
Johnson, J. A.		
Freezing of Earthworms	Sept.	43
McLellan, Kenneth		
Protect Seedlings Against Rabbits	Nov.	32
Pfeiffer, Dr. Ehrenfried		
Biodynamic Plants and Solutions	July	35
Know the Vitamins that you can Produce	Sept.	18
The Ideal Compost	July	19
Pim, Shelia		
Shakespeare on Compost	Oct.	51
Reinsmith, Winton H.		
Stabilizing Growth With Mulch	Aug.	32
Rodale, J. I.		
A Letter And An Answer	Dec.	23
Cancer—Part III	July	12
Cancer—Part IV	Aug.	12
Cancer—Part V	Sept.	12
Cancer—Part VI	Oct.	12
Cancer—Part VII	Nov.	14
Cancer—Part VIII	Dec.	14
Enzativator—A New Development In The Organic Method	Dec.	18
Enzactivator—A New Development In The Organic Method	Dec.	18
How To Apply the New Organic Method in the Garden	Dec.	29
Lawns and Lawn Grasses	Aug.	30
Miscellany	July	24
Miscellany	Aug.	28
Miscellany	Sept.	22
Miscellany	Oct.	15
Miscellany	Nov.	19
Radical Change in Organic Method	Dec.	26
Seminar on Compost—When to Make It	Sept.	50
Sir Albert Howard Encouraged Dhar	Dec.	55
Scott, Dr. Paul		
Ground Moles and Their Control	July	30
Root System of Beans	Oct.	47
Root System of the Beet	Nov.	48
Root System of Vegetable Plants	Sept.	45
Selvi, Dr. Charles		
Enclosed Manure Pits	Dec.	39
Stahr, Alden		
Two-by-Four Farm	Aug.	49
Steiner, F. D.		
How a City Solved Its Garbage Problem	Aug.	23
Treby, Miss Hilda		
Table Arrangement	Aug.	18
Walshaw, Edward R.		
Jerusalem Artichoke	Sept.	36
Lilium Superbum	Oct.	36
Wason, Robert M.		
Grinding Leaves	Oct.	35
Whallon, Archer D.		
The Small-Fruited Tomato	Oct.	26
Wickenden, Leonard		
I Don't Believe That (A series of articles)	Nov.	27
Wier, Mrs. R.		
Bracken and Wood Ash for Potatoes	July	52
Wilde, E. I.		
Color Combination With Phlox	Aug.	34
Wittrock, G. L.		
Basket of Gold	Aug.	44
Lore of our Native Witch-Hazel	Oct.	23
Spiked Speedwell	Sept.	30

SUBJECTS

A		
A Letter And An Answer	Dec.	23
Acidity And Alkalinity	Dec.	51
Amaryllis, Hardy	Nov.	57
Ants In The Driveway	Aug.	61
Aphids On Plum Trees	Aug.	59
Apples For Sale	Nov.	59
Artichoke, Jerusalem	Sept.	36
Artificials, Do They Give Greater Yields	Aug.	28
Asparagus From Seeds	July	58
Autumn, Signs of	Nov.	23

B		
Bananas	Oct.	9
Basket of Gold	Aug.	44
Better than Medicine	Nov.	22
Bill Submitted to Congress to Investigate Commercial Fertilizer, A	Aug.	42
Biodynamic Plants and Solutions	July	35
Birds In The Organic Garden	Dec.	9
Blueberries	Sept.	56
Blueberries, Compost For	July	60
Botany For The Organic Gardener Peat and the Peat Bog (20)	July	44

Mosses (21) ..... Aug. 37
Ferns (22) ..... Sept. 26
Bread, Whole Wheat ..... Nov. 21
Brownrot of Stone Fruits ..... July 57
Brush Disposal ..... Sept. 23
Bulbs And Earthworm Castings ..... Aug. 4

C

Cabbage Maggots ..... July 52
Cabbage Maggots ..... Sept. 25
Camphor and Eucalyptus Leaves .... Dec. 59
Can Synthetic Food Substitutes Solve Our Food Problem? ..... Oct. 30
Cancer—Part III ..... July 12
Cancer—Part IV ..... Aug. 12
Cancer—Part V ..... Sept. 12
Cancer—Part VI ..... Oct. 12
Cancer—Part VII ..... Nov. 14
Cancer—Part VIII ..... Dec. 14
Chemical Fertilizer, New Methods .... Oct. 15
Chlorosis ..... Oct. 60
Christmas Centerpiece, A ..... Dec. 23
Chrysanthemums, A Date With Your . Nov. 51
Cockleburs ..... Sept. 56
Color Combination With Phlox ..... Aug. 34
Compost, Autumn Heap ..... Oct. 56
Compost And Vegetables Invade The Porch ..... Nov. 37
Compost By Frazer ..... July 25
Compost for Blueberries ..... Sept. 59
Compost Milorganite ..... Aug. 3
Compost Proves Worth ..... Sept. 10
Compost, Seminar on—When to Make It ..... Sept. 50
Compost, Spent Mushroom ..... July 56
Compost, The Ideal ..... July 19
Compost Without Manure ..... Dec. 59
Compost Without Turning ..... Sept. 55
Composter, A Wonderful ..... Nov. 8
Composting Satisfactory ..... Aug. 7
Corn Cobs ..... Sept. 23
Corn Cobs ..... Sept. 55
Corn Smut ..... Dec. 59
Corn Stalks For Compost ..... Dec. 6
Cotton Combings ..... Sept. 55
Cucumbers And Compost ..... Aug. 57
Cutworms, Becoming More Common .. July 58
Cypress, Standing ..... Nov. 51

D

DDT, Does It Poison People? ..... July 24
Delphiniums ..... Nov. 50
Doctor Speaks, A ..... Aug. 26

E

Earthworms, A Seminar On ..... July 27
Earthworms, Again ..... Aug. 29
Earthworms Eat Unsprayed Apples .. Nov. 10
Earthworms, Freezing of ..... Sept. 43
Earthworms, How To Get In The Soil .. July 60
Earthworms, Hybrid ..... July 3
Earthworms, Raw Peanuts For ..... Sept. 58
Earthworms To The Rescue ..... Dec. 12
Egg Shell Powder ..... Sept. 23
Enclosed Manure Pits ..... Dec. 39
Enzactivator—A New Development In The Organic Method ..... Dec. 18
Explanation of the New Organic Method ..... Dec. 33

F

Farmer, An Organic Champion ..... Aug. 26
Fertilizer Theory Change ..... July 25
Fertilizers For Ferns And Rhododendrons ..... Sept. 59
Fireplace, The ..... July 18
Flowers, And Dangerous Viruses ..... July 25
Fruits, Organic ..... July 3

G

Garbage, The Problem ..... Aug. 9
Garden, A Transformed ..... July 4
Garden Calendar—July ..... July 47
Garden Calendar—August ..... Aug. 46
Garden Calendar—September ..... Sept. 40
Garden Calendar—October ..... Oct. 44
Garden Calendar—November ..... Nov. 45
Garden Calendar—December ..... Dec. 46
Garden Improvement Almost Unbelievable ..... Dec. 13
Gladiolus ..... Nov. 50
Grape Vines ..... Sept. 25
Green Manuring In Autumn ..... Oct. 56
Green Matter Experiment ..... Sept. 23
Grinding Leaves ..... Oct. 35
Ground Moles And Their Control ..... July 30

H

Harnessing Our Songbirds ..... Nov. 35
Health From Organic Gardening ..... Dec. 11
Health Plan of Pres. Truman ..... July 24
Herbs, Lush—When Organically Grown ..... July 22
Hints for the Flower Garden ..... Oct. 49
Hints for the Flower Garden ..... Nov. 50
Hints for the Vegetable Garden ..... Oct. 50
Homemade Plant Cutter ..... Aug. 51
Hot Caps (Paper Hats) for Garden Vegetables ..... Dec. 8
How A City Solved Its Garbage Problem ..... Aug. 22
How to Apply the New Organic Method in the Garden ..... Dec. 29
How To Plant Bulbs ..... Oct. 19
How To Propagate Evergreens From Cuttings ..... Nov. 24
Howard, Sir Albert, Encourages Dhar. Dec. 55
Humus Does It ..... Oct. 16
Hybrid Corn ..... Nov. 22

I

I Don't Believe That (A Series of Articles) ..... Nov. 27
Indians, Guatemala ..... Aug. 27
Insects, Friendly ..... July 6
Insects, Seminar On ..... Oct. 33
Iris, Japanese ..... July 61

K

Know the Vitamins that you can Produce ..... Sept. 18

L

Ladybird ..... Sept. 58
Lawns And Lawn Grasses ..... Aug. 30
Leaf Chopper, A ..... Sept. 38
Leaf Grinder ..... July 43
Leaf Grinders ..... Sept. 39
Leaves, Fresh Autumn ..... Nov. 51
Leaves In Gardening ..... Dec. 9
Lentils ..... Sept. 59
Lilies For Compost ..... Nov. 58
Lilium Superbum ..... Oct. 36
Limas, Starting Pole ..... Oct. 7
Lore of Our Native Witch-Hazel ..... Oct. 23

M

Make A Home Garden the Easy Way . Nov. 52
Medical Help ..... July 25
Mexican Bean Beetle ..... Sept. 24
Minerals From The Sea ..... July 41
Moles ..... Aug. 11
Moles And Moth Balls ..... Aug. 8
Moles, Successful Control of ..... Dec. 7
Mud Shell For Minerals ..... Nov. 4
Mulch, Straw ..... July 56
Mulch, Tea Leaf ..... July 61
Mulching Strawberries ..... Nov. 10
Mulching, Wood Shed ..... July 59
Mycorrhiza ..... Sept. 23
Mycorrhizae ..... Oct. 16

N

Natural Rock Fertilizers ..... Oct. 58
New Horizons In Composting ..... Dec. 50
Newspaper Item, A Typical ..... Oct. 17
Nitrate, Too Much ..... Nov. 21

O

Okra ..... Dec. 5
Orange, Nature's Water ..... Aug. 28
Oranges, The Mystery of Shrinking ... July 24
Organic Experimental Farm, The ..... Oct. 32
Organic Farmer Champion, An ..... Nov. 19
Organic Garden ..... July 3
Organic Garden Clubs ..... Aug. 52
Organic Gardener's Report, An ..... Oct. 3
Organic Matter, Burying, In Garden Paths ..... Oct. 58
Organic Methods Benefit Grapes ..... Nov. 29
Organic Restaurants ..... Nov. 20
Organics In Georgia ..... Oct. 10
Organiculture, Newspaper Acknowledges ..... Aug. 6

P

Pansies and Violets ..... July 59
Pansies For Early Spring Blooming .. Nov. 51
Pests, No ..... Oct. 7
Phlox and Bleeding Heart, How to Have Plenty of ..... Sept. 47
Plant diseases, Seminar On ..... Nov. 38
Plants for cover on Shady Ground ... Sept. 59
Plants, Pot ..... July 58
Plowing, No ..... Nov. 3
Potatoes and Acidity ..... Nov. 19
Potatoes, Bracken and Wood Used For ..... July 52
Potatoes and Protein ..... Nov. 19
Powdered Aloes Stop Rabbits From Eating Young Plants ..... Nov. 50

Q

Quack Grass Control ..... July 61
Quick Return Method OK'd ..... Sept. 6

R

Rabbits, How To Protect Trees from them ..... July 60
Rabbits, Milk Containers Outsmart ... Aug. 11
Rabbit Protection by Wire ..... Nov. 32
Radical Change In Organic Method ... Dec. 26
Renewed Pleasure In Gardening ..... Dec. 12
Results In Organic Gardening ..... Sept. 23
Rock-Bottom Apples ..... Aug. 40
Rock-Bottom Fruits ..... Nov. 57
Rock Vegetables Garden In Virginia .. Dec. 3
Root Hairs ..... Sept. 24
Root System of Beans ..... Oct. 47
Root System of the Beet ..... Nov. 48
Root Systems of Vegetable Plants .... Sept. 45
Roses ..... July 7
Roses ..... Dec. 4
Roses, Drainage For ..... Sept. 61

S

Sawdust Mulch ..... July 55
Scuppernongs ..... July 55
Seed Salvage Pays ..... Nov. 31
Seed Treatment ..... July 24
Sewage ..... Aug. 39
Shakespeare on Compost ..... Oct. 51
Slug Suggestion ..... Sept. 22
Small Experiment with Potatoes ..... Oct. 28
Soil Acidity in Berry Patch ..... Dec. 60
Soil Deficiency and Plant Tumors ..... Dec. 3
Soil Supplements ..... July 60
Stabilizing Growth With Mulch ..... Aug. 32
Strawberries In Narrow Beds ..... Sept. 8
Strawberries In Sawdust ..... Nov. 6
Strawberries, Mulching ..... Oct. 3
Strawberry, Replanting ..... July 57
Sunflower Seed Eating ..... Sept. 22
Sweet Corn For Summer's End ..... July 33
Sweet Peas Grow In Emmaus ..... Sept. 33

T

Table Arrangement ..... Aug. 18
Tannic Acid ..... Dec. 60
Teeth ..... Aug. 28
The Small Fruited Tomato ..... Oct. 26
The Soil and Health Foundation ..... July 31
The Soil and Health Foundation ..... Aug. 53
The Soil and Health Foundation ..... Sept. 49
The Soil and Health Foundation ..... Oct. 13
The Soil and Health Foundation ..... Nov. 28
The Soil and Health Foundation ..... Dec. 49
Tomato Damage ..... Sept. 35
Tomato Jugs ..... Oct. 11
Tomatoes, Without Transplanting .... July 52
Two-by-Four-Farm ..... Aug. 49

V

Varieties, New ..... Aug. 27
Vegetable, Lush In Clay ..... July 52
Vegetable Rock Garden In Virginia .. Nov. 3

W

Walnuts, Worthless ..... Aug. 57
Wines, Composting Makes Better ..... July 6
Winter Storage of Vegetables ..... Aug. 19

The Trend is The Organic Way

These ORGANIC GARDENING Books and Booklets Show You the *Why* and *How!*

Vital Publications for Organic Gardeners

AN AGRICULTURAL TESTAMENT
by Sir Albert Howard, C.I.E.
The standard textbook for all who want to change over to home-made organic fertilizers. 253 pp. **$3.50.**

•

THE SOIL AND HEALTH
by Sir Albert Howard, C.I.E.
Food problems can be solved only by restoring to the soil its virginal fertility. Most farmers are soil bandits. A remarkable follow-up to "An Agricultural Testament". 320 pp. **$4.00.**

•

MAKE FRIENDS with Your Land
by Leonard Wickenden
A knock-out blow to chemical fertilizers. Illustrated, 144 pp. **$2.50.**

•

NUTRITION AND THE SOIL
by Dr. Lionel Picton
Scientific evidence that nourishing food comes only from crops and animals raised organically. 400 pp. **$4.00.**

•

BIO-DYNAMIC Farming & Gardening
by Dr. Ehrenfried Pfeiffer
Describes in detail how to convert an ordinary farm into a bio-dynamic farm. Paper, 240 pp., 18 illus. **$1.75.**

•

GROW A GARDEN
by Dr. Ehrenfried Pfeiffer
How to grow each vegetable the bio-dynamic way. Paper, 118 pp. **$1.40.**

•

THE COMPOST GARDENER
by F. C. King
An English gardener explains his system of organic gardening. Foreword by Sir Albert Howard. Paper, 100 pp. **$1.00.**

•

EARTHWORMS—Their Intensive Propagation
by Dr. Thomas J. Barrett
Complete, practical working directions for breeding, feeding, growing, and harvesting. Paper, 60 pp. **$1.00.**

THE ORGANIC GARDENING LIBRARY

Popular paper-covered, pocket-size booklets

1. **THE DOCTORS' ATTITUDE TOWARD FERTILIZERS.** What they think of the organic method. Contains transcript from U. S. Senate Hearing. 60c
2. **MANUAL OF ORGANIC MATERIALS. A Comprehensive List of Compostable Materials Occurring in the Home and in Industry.** This book alphabetically lists 85 substances that may be used to keep the soil fertile in Nature's way. It defines the composition of each material and what each substance contributes in plant nutrients to the soil. . 50c
3. **BULBS AND HOUSE PLANTS** by Cecile Matschat. Discusses tulips, iris, lilies, peonies, etc. 60c
4. **ANNUALS AND PERENNIALS** by Cecile Hulse Matschat. Describes the advantages of annuals over perennials and vice-versa. . . 60c
5. **HOUSE AND GREENHOUSE GARDENING** by Fred McCready. Deals with inexpensive means for growing plants in your house and under glass in hot-beds and greenhouses. . . $1.00
6. **GARDENING WITH THE EXPERTS.** An encyclopedia on all phases of gardening. . $1.00
7. **THE WAR IN THE SOIL** by Sir Albert Howard, C.I.E.,M.A. A magnificent summary of the organic cause for those who desire to change from ordinary to home-made organic fertilizer. . . 80c
8. **SEEDLINGS** by Evelyn Speiden. How to start seedlings—how to prepare the garden. . $1.00
9. **VEST-POCKET VEGETABLE GUIDE** by Roger W. Smith. How to grow 40 vegetables in the organic manner—for medium northern climate. 25c
10. **COMPLETE MODERN GARDEN HERBAL** by Robert O. Barlow. Many facts about herb gardening and usage in several lands. . . $1.00
11. **THE FRUIT ORCHARD** edited by J. I. Rodale. Practical hints, unusual data on fruit growing. 50c
12. **LEAVES AND WHAT THEY DO** by Heinrich Meyer. For every gardener and lover of plants. 45c
13. **SUNFLOWER SEED—THE MIRACLE FOOD** by J. I. Rodale. Treatise on how to grow, how to eat this vitamin-rich food. . . . 50c
14. **WEEDS AND WHAT THEY TELL** by Ehrenfried Pfeiffer. Discusses hundreds of weeds common to farm, orchard and garden. . . $1.00
15. **SHRUBS AND TREES** by Cecile Matschat. Landscape design, borders and backgrounds, street trees, flowering trees, fruit trees, evergreens, etc. 60c
16. **HOW TO MAKE A GARDEN** by Cecile Hulse Matschat. Here are all the facts and underlying principles to make any garden a success. Illustrated. 65c
17. **PLANNING THE HOME GROUNDS** by Cecile Matschat. Whether you buy or build . . . remodel or start from the ground up, this book will help you develop a beautiful setting for your home. . 65c
18. **HOUSE PLANTS—How To Grow Them** by P. T. Barnes. A complete guide for growing healthy vigorous plants in the house. . . 50c
19. **TEN TRUSTWORTHY TROPICAL TREES** by John C. Gifford. A delightful book. Includes the lime, coconut, guava, avocado and mango. . $1.00
20. **WILD GARDENS OF NEW ENGLAND** by Walter Prichard Eaton. How to reproduce natural settings of wild flowers in your garden. . . $1.00
21. **GARDENING FOR PROFIT** by Peter Henderson. Originally published in 1874. Reveals many profitable secrets for present-day gardeners. . $1.00
22. **QUICK-RETURN METHOD OF COMPOST-MAKING** by M. E. Bruce. New ideas for producing compost WITH OR WITHOUT manure. $1.00
23. **TREE CROPS** by J. Russell Smith. An inspiring book on trees yielding crops as animal food. 75c
24. **EDIBLE PLANTS OF THE POND AND WATER GARDEN** by G. L. Wittrock. A wonderful instructor for the nature-lover and fisherman. . 50c
25. **THE FORMATION OF VEGETABLE MOLD THROUGH THE ACTION OF WORMS** by Charles Darwin. The most important parts of his classic on the earthworm, with other articles. . 60c
26. **OUR FRIEND THE EARTHWORM** by George S. Oliver. Deals with the importance of the earthworm to gardening. . . . $1.00
27. **ANIMALS AND THE GARDENER** by Richard Headstrom. Animals and insects that are friends and foes to the garden. . . . 35c
28. **LUTHER BURBANK** by Roger W. Smith. Plant breeding and the important contributions of this great horticultural pioneer. . . 35c
29. **QUESTIONS AND ANSWERS ON COMPOST** edited by J. I. Rodale and Heinrich Meyer. A guide for compost-making. . . 35c
30. **COMPOST—HOW TO MAKE IT** edited by J. I. Rodale. The only book of its kind. . 35c
31. **SLEEP AND RHEUMATISM** by J. I. Rodale. Simple rules for avoiding stubborn conditions of neuritis caused by pressures exerted during sleep. 35c
32. **NATURAL BREAD** edited by J. I. Rodale. Discusses health-giving values of breads and cereals made with organically-grown stone-ground grains. 35c
33. **DEBATES IN HOUSE OF LORDS.** Deals with the advisability of forming a Royal Commission to check on the Howard method of farming. . 45c
35. **FLOWERS FOR EVERYONE** by Heinrich Meyer. Facts about common plants of the garden. 40c
36. **THE GARDEN NOTEBOOK** by Alfred Putz and J. W. Johnson. Proper methods and practices for all types of gardening. . . $1.25
37. **THE GLADIOLUS BOOK** by William M. Joki. All about the gladiolus and its culture. . $1.00
38. **THE BERRY BOOK** by M. B. Cummings, Ph.D. If you grow, or intend to grow, berries, this book is worthy of your attention. . . 80c
39. **FLOWER CALENDAR** by Dr. W. H. Eyster. Tells what to plant and when to do it. Assures a blooming, beautiful garden all year round. . $1.00
40. **THE VEGETABLE CALENDAR** by Dr. W. H. Eyster. Climate maps and extensive tables; month-by-month chart of sowing and harvesting. $1.00
41. **THE ORGANIC METHOD ON THE FARM** by J. I. Rodale. Large-scale composting; odorless, laborless chicken-house; field crops and orchards. $1.00

BINDERS for Organic Gardening Library Booklets. Each holds 12 books. Copies easily removed. $1.25

•

SPECIAL OFFERS

A FREE binder with every order for $10 worth of Organic Gardening Library Booklets.
The entire series of 40 books, mounted in 3 binders, value $31.80: ONLY $25!

Postage prepaid on domestic cash orders. Canada and Foreign add 10% for shipping charges.

Send your order direct to ORGANIC GARDENING, Emmaus, Pennsylvania

0 12 50 IVR 512831 FWF
LIBRARY
PURDUE UNIVERSITY
LAFAYETTE IND

This "Can of Magic" Must Give You a Better Garden — or Your Money Back!

Makes compost quicker, easier, cheaper and better out of difficult materials.

•

Use even sawdust and chaff. Compost garbage and sludge without odor! These make the richest humus known to man!

•

See the magical difference it will make in weak, sluggish soils—just a few handfuls mixed into soil. It conditions, activates—adds life, energy and vitality.

•

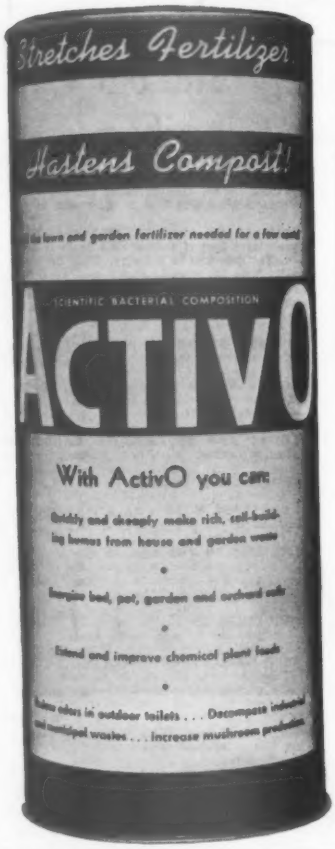
Use ActivO to reduce odors in outdoor toilets—while it converts the waste into an ash-like fertilizer-humus.

•

ActivO is a rich, black, velvety humus fortified with billions of Nature's own beneficial micro-organisms, hormones, vitamins, minerals and the mysterious biotics, Nature's balancers.

•

Please do not accept substitutes. **There's NOTHING like it; nothing "just as good".**



Plant a little with each seed and see the difference in your plants—and the yield! Flowers, too, have better color.

•

Use ActivO to make your own organic fertilizer and liquid manure — quickly (complete directions tell you how to do this and dozens of other unusual garden tricks.) Use it in hot beds or to make hot beds without manure.

•

All organic—no chemicals! Nature, herself—*amplified*, and packed in a can! SEND NOW FOR *ALL* THE INTERESTING DETAILS.

•

It's cost is amazingly little (See below.) And it's *good for* your compost, *good for* your soil, *good for* EARTHWORMS.

•

At dealers in sizes at $1.00 and up. See your dealer TODAY — *now*. If your dealer doesn't have it, use handy coupon below.

GIVEN Extra award. **Besides the FREE information on the new, quicker methods of composting, we give you without extra charge, with the big No. 25 and No. 50 sizes of ActivO, PLANS and easy instructions for building the popular IA COMPOSTER CABINET. With this sanitary method you can make compost any month of the year in basement, garage, or tiny backyard—without odor. Continuous process. Solves garbage disposal. Be sure to CHECK BELOW if you want the No. 25 or No. 50 sizes and plans for the cabinet pictured at right.**

POTTED PLANTS HUNGRY?

House Plants Thrive on ActivO!

Just mix ActivO with potting soil —2 to 4 tablespoons per quart of soil . . . or add to soil of plants already potted and growing. See them pep up! . . . Living organisms, minerals, hormones and vitamins in ActivO energize soil; stimulate growth, make more lush foliage, encourage better blooming and richer color. Tonic for sickly plants.

"NEVER SAW SUCH BLOOMING,"

writes garden authority, who mixed ActivO with potting soil for fuchias.

Try it! By all means use it with AFRICAN VIOLETS.

No. 7 size ActivO gives hundreds of plant feedings.

MAIL TO → BENSON-MACLEAN PLANT PRODUCTS, Bridgeton 4, Ind.

Northeastern States: Address ActivO-Soilservice, P. O. Box 131, Townsend, Mass.
West Coast: ActivO-West, P. O. Box 745, Reseda, Calif.

Inclosed is ..... for $..... Send the following: (Add 10% West of Rockies)

☐ No. 7 size for 1350 lb. compost, at $2.00 ea. postpaid.

☐ No. 25 size for up to 3 tons compost, $6.99 (prepaid) with FREE Composter Cabinet plans.

☐ No. 50 size, for 6½ tons, $11.95, freight collect; with FREE plans.

☐ FREE literature: ActivO and composting.

NAME .....

ADDRESS .....

P. O. and State .....

Supply Dealer's Name .....

And Address .....

SHIPPING POINT
If different from P. O.

"Acto" in Canada

***MORE* THAN A COMPOST HASTENER!**

ActivO